SAMSUNG

WALL MOUNTED TYPE

AQ12PGGE	AS09P8GB
AQ12PBGE	AS09P8GE
SH12ZPG	AS09PBGE
SH12ZPGA	AQ07P8GE
AS12PGGB	AQ07PBGE
AS12PGGE	SH07ZPG
AS12PBGE	SH07ZPGA
AQ09P8GE	AS07P8GB
AQ09PBGE	AS07P8GE
SH09ZPG	AS07PBGE
SH09ZPGA	AS07P8GD

TRAINING Manual

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Model Line-Up

1-1. Model Identification

1-2. Model Line-Up

Model Identification

1-1. Model Identification

Wall Mounted Type Air Conditioner

● **Standard type**

Model Code

Model Name

I	A	Q	V	09	A	1	M	E	□	/○○○
	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩

Sub_Set	
Set	None
Indoor	I
Outdoor	X

① Set Initial	
Set	A
Indoor	A
Outdoor	U

② Mode	
H/P	Q
C/O	S

③ Tech	
General	
Tropical	T
INV+R22	V
R22+BLDC	D
Low Temp.	L
R407c	C
R410a	A
R410a+BLDC	B

④ Capacity	
Btu	
"30"	HP Mark

⑤ Design of Grille type	
S/S Stand	A
Smile	B
C&C	C
V-Lip	D
G Premium Model	P
G Standard Model	S
G Standard Model (KL Grille)	K
Interior	I
GE	E
KLIMAT	Y

⑥ Used	
PD('00R)	1
PD_MR('00R)	2
MD('00R)	3
MD_MR('00R)	4
PD2	5
PD2_MR	6
MD2	7
MD2_MR	8
PD3	9
PD3MR	0
Active	A
Active + MR	B
INV	C
C Specification+MR	D
Active2	E
G Mold	G

⑦ P/J Name	
V2	M
R	R
T2	T
Fashion	F
V3	C
B	B
G	G
Used	Q
Used	V
Used	A

⑧ Rating Voltage	
115V, 60Hz	A
220V, 60Hz	B
208~230V, 60Hz	C
200~220V, 50Hz	D
220~240V, 50Hz	E

⑨ Serial Version	
Basic	None
M/R	R
Specification change	⋮
⋮	⋮

Model Identification (Cont.)

Wall Mounted Type Air Conditioner

● **Separated type of export model for EU in private**

Model Code

Model Name

①	②	③	④	⑤	⑥	⑦	⑧	⑨
S	H	09	Z	A	1	□	X	/○○○

① Products	
Separated type	S

② Function	
H/P	H
C/O	C

③ Capa
Btu

④ Tech	
Normal	Z
Tropical	T
INV+R22	V
R22+BLDC	D
Lower temperature model	L
R407c	C
R410a	A
R410a+BLDC	B

⑤ Design of Grille type	
S/S Standard	A
Smile	B
C&C	C
V-Lip	D
G Premium Model	P
G Standard Model	S
G Standard Model (KL Grille)	K
Interior	I
Fashion	F
GE	E
KLIMAT	Y

⑥ Option (Outdoor unit sash)	
PD	1
PD_MR	2
MD	3
MD_MR	4
PD2	5
PD2_MR	6
MD2	7
MD2_MR	8
PD3	9
PD3_MR	0
Active	A
A Specification+MR	B
INV(VSash)	C
C Specification+MR	D
G Mold	G
Active2	E

⑦ Half finished products	
Indoor	None
Outdoor	X

⑧ Serial Version	
Basic	None
Specification change	A
⋮	⋮

Model Identification (Cont.)

Piping(Parts Box)

Model Code

Model Name

F	S	C	-	14	38	N	A
①	②	③	④	⑤	⑥	⑦	⑧

① Piping division	
Initial	F

② Products		
Export	RAC	S
Domestic	RAC	R
Common	PAC	P
	Cassette	B
	Duct	D
	Ceiling	F
	DPM	M

③ Function		
Export	H/P	H
	C/O	C
Domestic	H/P	H
	C/O	C
	Oil	G
	Multi	M

④ Division	
Export	None
Domestic	-

⑤ High pressure pipe Outer diameter	
1/4"	14
3/8"	38

⑥ Low pressure Outer diameter	
1/2"	12
3/4"	34
3/8"	38
5/8"	58

⑦ Voltage type		
Export	NONE	
Domestic	Indoor	N
	Outdoor	X

⑧ Version	
Basic	A
New1	B
...	...
'01R Standard	Z

Model Line-Up

1-2. Model Line-Up (2003R)

			Indoor Unit	Outdoor Unit	Piping Unit
COOLING ONLY	A (STEEL)	7K	AS07PBGE	US07PBGE	FSC1438Z
		9K	AS09PBGE	US09PBGE	FSC1438Z
		12K	AS12PBGE	US12PBGE	FSC1412Z
	B (MOLD)	7K	AS07P8GB AS07P8GE AS07P8GD	US07P8GB US07P8GE US07P8GD	FSC1438Z
		9K	AS09P8GB AS09P8GE	US09P8GB US09P8GE	FSC1438Z
		12K	AS12PGGB AS12PGGE	US12PGGB US12PGGE	FSC1412Z
HEAT PUMP	C (STEEL)	7K	AQ07PBGE	UQ07PBGE	FSH1438Z
		9K	AQ09PBGE	UQ09PBGE	FSH1438Z
		12K	AQ12PBGE	UQ12PBGE	FSH1412Z
	D (MOLD)	7K	AQ07P8GE SH07ZPG SH07ZPGA	UQ07P8GE SH07ZPGX SH07ZPGAX	FSH1438Z
		9K	AQ09P8GE SH09ZPG SH09ZPGA	UQ09P8GE SH09ZPGX SH09ZPGAX	FSH1438Z
		12K	AQ12PGGE SH12ZPG SH12ZPGA	UQ12PGGE SH12ZPGX SH12ZPGAX	FSH1412Z



Specifications

2-1. Heat Pump

2-2. Cooling Only

Heat Pump

2-1. Heat Pump

Item \ Model					AQ12PGGE		AQ12PBGE	
					Indoor unit	Outdoor unit	Indoor unit	Outdoor unit
Type					Wall-mounted		Wall-mounted	
Performance	Cooling			-	12,000BTU/h		12,000BTU/h	
	Heating			-	13,000BTU/h		13,000BTU/h	
	Dehumidifying			ℓ/h	1.9		1.9	
	Air volume	Cooling		m^3/min	8.0	24	8.0	24
		Heating			8.6	24	8.6	24
	Noise	Cooling		dB	40	50	40	50
		Heating			40	50	40	50
	Energy efficiency ratio	Cooling		W/W	2.97		2.97	
		Heating			3.25		3.30	
	Power			V-Hz	1-220 / 240-50		1-220 / 240-50	
Power	Power Consumption	Cooling		W	1180		1180	
		Heating			1170		1150	
	Operating Current	Cooling		A	5.3		5.2	
		Heating			5.1		6.1	
	Power factor	Cooling		%	96.8		98.7	
		Heating			99.7		98.0	
	Starting current			A	32.0		32.0	
	Power cord	Length		m	-		-	
		Number of core wire			-		-	
		Capacity		A	250V-10 / 16A		250V-10 / 16A	
Size	Outer Dimension	Width x Height x Depth		mm	890 x 285 x 179	695 x 530 x 280	890 x 285 x 179	740 x 530 x 230
				inch	35.0 x 11.2 x 7.0	27.4 x 20.9 x 11.0	35.0 x 11.2 x 7.0	29.1 x 20.9 x 9.1
	Weight			kg	8.5	33.0	8.5	35.0
	Refrigerant pipe	Liquid		mm x L(MT)	ø6.35 x 5		ø6.35 x 5	
		GAS		mm x L(MT)	ø12.7 x 5		ø12.7 x 5	
	Drain hose			D x L(mm)	ø18 x 2000		ø18 x 2000	
	Compressor	Type			Rotary		Rotary	
		Motor	Type		-	-	-	-
			Rated output		-	-	-	-
	Blower	Type			Cross-flow	Propeller	Cross-flow	Propeller
		Motor	Type		steel	steel	steel	steel
			Rated output	W	15	25	15	25
Heat exchanger					2ROW 12STEP	1ROW 20STEP	2ROW 12STEP	2ROW 24STEP
Refrigerant control unit					CAPILLARY TUBE		CAPILLARY TUBE	
Freezer oil capacity				cc	600		600	
Refrigerant to change(R-22)				g	820		910	
Protection device(OLP)					RAC 12074-9622		RAC 12074-9622	
Cooling test Condition					INDOOR UNIT : DB27˚C WB19˚C		OUTDOOR UNIT : DB35˚C WB24˚C	
Maximum operation Condition					INDOOR UNIT : DB32˚C WB23˚C		OUTDOOR UNIT : DB43˚C WB26˚C	

Heat Pump (Cont.)

Heat Pump (Cont.)

Item				Model	SH12ZPG SH12ZPGA		AQ09P8GE		AQ09PBGE	
					Indoor unit	Outdoor unit	Indoor unit	Outdoor unit	Indoor unit	Outdoor unit
Type					Wall-mounted		Wall-mounted		Wall-mounted	
Performance	Cooling ( ) : RUSSIA, CIS			-	3.5kW (11,990)BTU/h		9,200BTU/h		9,000BTU/h	
	Heating ( ) : RUSSIA, CIS			-	3.8kW (11,990)BTU/h		10,000BTU/h		10,000BTU/h	
	Dehumidifying			ℓ/h	1.9		1.4		1.4	
	Air volume	Cooling		m^3/min	8.2	24	6.4	19	6.4	24
		Heating			9.1	24	7.0	19	7.0	24
	Noise ( ) : EUROVENT	Cooling		dB	42(53)	50(63)	38	48	38	48
		Heating			42(53)	50(63)	38	48	38	48
	Energy efficiency ratio	Cooling		W/W	3.21		2.81		2.74	
		Heating			3.41		3.22		3.22	
	Power			V-Hz	1-220 / 240-50		1-220 / 240-50		1-220 / 240-50	
Power	Power Consumption	Cooling		W	1090		960		950	
		Heating			1115		900		900	
	Operating Current	Cooling		A	5.0		4.4		4.2	
		Heating			5.0		4.0		4.1	
	Power factor	Cooling		%	94.8		94.9		98.3	
		Heating			97.0		97.8		95.4	
	Starting current			A	32.0		21.0		21.0	
	Power cord	Length		m	-		-		-	
		Number of core wire			-		-		-	
		Capacity		A	250V-10 / 16A		250V-10 / 16A		250V-10 / 16A	
Size	Outer Dimension	Width x Height x Depth		mm	890x285x179	695x530x280	795x258x179	660x475x242	795x258x179	740x530x230
				inch	35.0x11.2x7.0	27.4x20.9x11.0	31.3x10.2x7.0	26.0x18.7x9.5	31.3x10.2x7.0	29.1x20.9x9.1
	Weight			kg	8.5	33.0	7.5	26.3	7.5	26.5
	Refrigerant pipe	Liquid		mm x L(MT)	ø6.35 x 5		ø6.35 x 5		ø6.35 x 5	
		GAS		mm x L(MT)	ø12.7 x 5		ø9.52 x 5		ø9.52 x 5	
	Drain hose			D x L(mm)	ø18 x 2000		ø18 x 2000		ø18 x 2000	
	Compressor	Type			Rotary		Rotary		Rotary	
		Motor	Type		-	-	-	-	-	-
			Rated output		-	-	-	-	-	-
	Blower	Type			Cross-flow	Propeller	Cross-flow	Propeller	Cross-flow	Propeller
		Motor	Type		steel	steel	steel	steel	steel	steel
			Rated output	W	15	25	11	20	11	25
Heat exchanger					2ROW 12STEP	2ROW 24STEP	2ROW 10STEP	1ROW 18STEP	2ROW 10STEP	1ROW 24STEP
Refrigerant control unit					CAPILLARY TUBE		CAPILLARY TUBE		CAPILLARY TUBE	
Freezer oil capacity				cc	410		360		360	
Refrigerant to change(R-22)				g	980		660		580	
Protection device(OLP)					RAC 12123-9622		RAC 12110-9622		RAC 12110-9622	
Cooling test Condition					INDOOR UNIT : DB27˚C WB19˚C OUTDOOR UNIT : DB35˚C WB24˚C					
Maximum operation Condition					INDOOR UNIT : DB32˚C WB23˚C OUTDOOR UNIT : DB43˚C WB26˚C					

Heat Pump (Cont.)

SH09ZPG SH09ZPGA		AQ07P8GE		AQ07PBGE		SH07ZPG SH07ZPGA	
Indoor unit	Outdoor unit	Indoor unit	Outdoor unit	Indoor unit	Outdoor unit	Indoor unit	Outdoor unit
Wall-mounted		Wall-mounted		Wall-mounted		Wall-mounted	
2.6kW		7,500BTU/h		7,800BTU/h		2.3kW	
(8,990)BTU/h						(7,500)BTU/h	
2.9kW		8,000BTU/h		8,200BTU/h		2.4kW	
(8,990)BTU/h						(8,200)BTU/h	
1.4		0.9		0.9		0.9	
6.6	24	6.2	19	6.2	24	6.2	24
7.1	24	6.2	19	6.2	24	6.5	24
39(50)	48(58)	36	47	36	47	36(47)	47(47)
39(50)	48(58)	36	47	36	47	36(57)	47(57)
3.21		2.86		3.07		3.22	
3.33		3.29		3.43		3.43	
1-220 / 240-50		1-220 / 240-50		1-220 / 240-50		1-220 / 240-50	
810		770		750		715	
870		700		700		700	
3.7		3.3		3.3		3.2	
3.9		3.1		3.1		3.2	
95.2		99.9		98.8		97.1	
97.0		98.2		98.2		95.1	
21.0		18.0		17.0		18.0	
-		-		-		-	
-		-		-		-	
250V-10 / 16A		250V-10 / 16A		250V-10 / 16A		250V-10 / 16A	
795x258x179	695x530x280	795 x 258 x 179	660 x 475 x 242	795 x 258 x 179	740 x 530 x 230	795 x 258 x 179	695 x 530 x 280
31.3x10.2x7.0	27.4x20.9x11.0	31.3 x 10.2 x 7.0	26.0 x 18.7 x 9.5	31.3 x 10.2 x 7.0	29.1 x 20.9 x 9.1	31.3 x 10.2 x 7.0	27.4 x 20.9 x 11.0
7.5	28.0	7.5	25.6	7.5	26.1	7.5	27.5
ø6.35 x 5		ø6.35 x 5		ø6.35 x 5		ø6.35 x 5	
ø9.52 x 5		ø9.52 x 5		ø9.52 x 5		ø9.52 x 5	
ø18 x 2000		ø18 x 2000		ø18 x 2000		ø18 x 2000	
Rotary		Rotary		Rotary		Rotary	
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
Cross-flow	Propeller	Cross-flow	Propeller	Cross-flow	Propeller	Cross-flow	Propeller
steel	steel	steel	steel	steel	steel	steel	steel
11	25	11	20	11	20	11	25
2ROW 10STEP	1ROW 20STEP	2ROW 10STEP	1ROW 18STEP	2ROW 10STEP	1ROW 18STEP	2ROW 10STEP	1ROW 20STEP
CAPILLARY TUBE		CAPILLARY TUBE		CAPILLARY TUBE		CAPILLARY TUBE	
360		360		360		360	
740		620		640		700	
RAC 12054-9622		RAC 12144-9622		RAC 12144-9622		RAC 12144-9622	
		INDOOR UNIT : DB27˚C WB19˚C		OUTDOOR UNIT : DB35˚C WB24˚C			
		INDOOR UNIT : DB32˚C WB23˚C		OUTDOOR UNIT : DB43˚C WB26˚C			

Cooling Only

2-2. Cooling Only

Item				Model	AS12PGGB(Latain America)		AS12PGGB(Tiwan)	
					Indoor unit	Outdoor unit	Indoor unit	Outdoor unit
Type					Wall-mounted		Wall-mounted	
Perfor-mance	Cooling			-	12,500BTU/h		3.6kW	
	Dehumidifying			ℓ/h	1.9		1.9	
	Air volume	Cooling		m^3/min	8.0	24	8.0	24
	Noise	Cooling		dB	40	50	40	50
	Energy efficiency ratio	Cooling		W/W	3.05		2.98	
	Power			V-Hz	1-220-60		1-220-60	
Power	Power Consumption	Cooling		W	1200		1210	
	Operating Current	Cooling		A	5.6		5.6	
	Power factor	Cooling		%	97.4		98.2	
	Starting current			A	30.0		30.0	
	Power cord	Length		m	-		-	
		Number of core wire			-		-	
		Capacity		A	250V-10 / 16A		250V-10 / 16A	
Size	Outer Dimension	Width x Height x Depth		mm	890 x 285 x 179	695 x 530 x 280	890 x 285 x 179	695 x 530 x 280
				inch	35.0 x 11.2 x 7.0	27.4 x 20.9 x 11.0	35.0 x 11.2 x 7.0	27.4 x 20.9 x 11.0
	Weight			kg	8.5	29.1	8.5	29.1
	Refrigerant pipe	Liquid		mm x L(MT)	ø6.35 x 5		ø6.35 x 5	
		GAS		mm x L(MT)	ø12.7 x 5		ø12.7 x 5	
	Drain hose			D x L(mm)	ø18 x 2000		ø18 x 2000	
	Compressor	Type			Rotary		Rotary	
		Motor	Type		-	-	-	-
			Rated output		-	-	-	-
	Blower	Type			Cross-flow	Propeller	Cross-flow	Propeller
		Motor	Type		steel	steel	steel	steel
			Rated output	W	15	25	15	25
Heat exchanger					2ROW 12STEP	1ROW 20STEP	2ROW 12STEP	1ROW 20STEP
Refrigerant control unit					CAPILLARY TUBE		CAPILLARY TUBE	
Freezer oil capacity				cc	360		360	
Refrigerant to change(R-22)				g	720		720	
Protection device(OLP)					RAC 12074-9622		RAC 12074-9622	
Cooling test Condition					INDOOR UNIT : DB27˚C WB19˚C		OUTDOOR UNIT : DB35˚C WB24˚C	
Maximum operation Condition					INDOOR UNIT : DB32˚C WB23˚C		OUTDOOR UNIT : DB43˚C WB26˚C	

Cooling Only (Cont.)

AS12PGGE		AS12PBGE		AS09P8GB(Latain America)		AS09P8GB(Tiwan)	
Indoor unit	Outdoor unit	Indoor unit	Outdoor unit	Indoor unit	Outdoor unit	Indoor unit	Outdoor unit
Wall-mounted		Wall-mounted		Wall-mounted		Wall-mounted	
12,500BTU/h		12,500BTU/h		9,500BTU/h		2.8kW	
1.9		1.9		1.4		1.4	
8.0	24	8.0	24	6.4	19	6.4	19
40	50	40	50	38	48	38	48
3.10		3.20		2.96		2.98	
1-220 / 240-50		1-220 / 240-50		1-220-60		1-220-60	
1180		1100		940		940	
5.4		5.0		4.4		4.4	
95.0		95.7		97.1		97.1	
32.0		32.0		22.0		22.0	
-		-		-		-	
-		-		-		-	
250V-10 / 16A		250V-10 / 16A		250V-10 / 16A		250V-10 / 16A	
890x285x179	695x530x280	890x285x179	740x530x230	795x258x179	660x475x242	795x258x179	660x475x242
35.0x11.2x7.0	27.4x20.9x11.0	35.0x11.2x7.0	29.1x20.9x9.1	31.3x10.2x7.0	26.0x18.7x9.5	31.3x10.2x7.0	26.0x18.7x9.5
8.5	32.5	8.5	34.5	7.5	25.7	7.5	25.7
ø6.35 x 5		ø6.35 x 5		ø6.35 x 5		ø6.35 x 5	
ø12.7 x 5		ø12.7 x 5		ø9.52 x 5		ø9.52 x 5	
ø18 x 2000		ø18 x 2000		ø18 x 2000		ø18 x 2000	
Rotary		Rotary		Rotary		Rotary	
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
Cross-flow	Propeller	Cross-flow	Propeller	Cross-flow	Propeller	Cross-flow	Propeller
steel	steel	steel	steel	steel	steel	steel	steel
15	25	15	25	11	20	11	20
2ROW 12STEP	1ROW 20STEP	2ROW 12STEP	2ROW 24STEP	2ROW 10STEP	1ROW 18STEP	2ROW 10STEP	1ROW 18STEP
CAPILLARY TUBE		CAPILLARY TUBE		CAPILLARY TUBE		CAPILLARY TUBE	
600		600		360		360	
820		840		615		615	
RAC 12074-9622		RAC 12074-9622		RAC 12067-9622		RAC 12067-9622	
		INDOOR UNIT : DB27˚C WB19˚C		OUTDOOR UNIT : DB35˚C WB24˚C			
		INDOOR UNIT : DB32˚C WB23˚C		OUTDOOR UNIT : DB43˚C WB26˚C			

Cooling Only (Cont.)

Cooling Only (Cont.)

Item				Model	AS09P8GE		AS09PBGE	
					Indoor unit	Outdoor unit	Indoor unit	Outdoor unit
Type					Wall-mounted		Wall-mounted	
Performance	Cooling			-	9,200BTU/h		9,200BTU/h	
	Dehumidifying			ℓ/h	1.4		1.4	
	Air volume	Cooling		m^3/min	6.6	19	6.4	24
	Noise	Cooling		dB	39	48	38	50
	Energy efficiency ratio	Cooling		W/W	2.81		2.84	
	Power			V-Hz	1-220 / 240-50		1-220 / 240-50	
Power	Power Consumption	Cooling		W	960		950	
	Operating Current	Cooling		A	4.4		4.2	
	Power factor	Cooling		%	94.9		98.3	
	Starting current			A	21.0		21.0	
	Power cord	Length		m	-		-	
		Number of core wire			-		-	
		Capacity		A	250V-10 / 16A		250V-10 / 16A	
Size	Outer Dimension	Width x Height x Depth		mm	795x258x179	660x475x242	795x258x179	740x530x230
				inch	31.3x10.2x7.0	26.0x18.7x9.5	31.3x10.2x7.0	29.1x20.9x9.1
	Weight			kg	7.5	25.8	7.5	26.1
	Refrigerant pipe	Liquid		mm x L(MT)	ø6.35 x 5		ø6.35 x 5	
		GAS		mm x L(MT)	ø9.52 x 5		ø9.52 x 5	
	Drain hose			D x L(mm)	ø18 x 2000		ø18 x 2000	
	Compressor	Type			Rotary		Rotary	
		Motor	Type		-	-	-	-
			Rated output		-	-	-	-
	Blower	Type			Cross-flow	Propeller	Cross-flow	Propeller
		Motor	Type		steel	steel	steel	steel
			Rated output	W	11	20	11	25
Heat exchanger					2ROW 10STEP	1ROW 18STEP	2ROW 10STEP	1ROW 24STEP
Refrigerant control unit					CAPILLARY TUBE		CAPILLARY TUBE	
Freezer oil capacity				cc	360		360	
Refrigerant to change(R-22)				g	660		520	
Protection device(OLP)					RAC 12110-9622		RAC 12110-9622	
Cooling test Condition					INDOOR UNIT : DB27˚C WB19˚C		OUTDOOR UNIT : DB35˚C WB24˚C	
Maximum operation Condition					INDOOR UNIT : DB32˚C WB23˚C		OUTDOOR UNIT : DB43˚C WB26˚C	

Cooling Only (Cont.)

AS07P8GB		AS07P8GE		AS07PBGE		AS07P8GD	
Indoor unit	Outdoor unit	Indoor unit	Outdoor unit	Indoor unit	Outdoor unit	Indoor unit	Outdoor unit
Wall-mounted		Wall-mounted		Wall-mounted		Wall-mounted	
7,500BTU/h		7,800BTU/h		7,800BTU/h		7,000BTU/h	
0.9		0.9		0.9		0.9	
6.0	19	6.2	19	6.2	24	5.6	19
35	47	36	47	36	47	35	47
3.38		2.97		3.27		3.48	
1-220-60		1-220 / 240-50		1-220 / 240-50		1-200 / 220-50	
650		770		700		590	
3.4		3.4		3.2		2.8	
98.5		98.5		95.1		91.6	
14.0		17.0		17.0		16.5	
-		-		-		-	
-		-		-		-	
250V-10 / 16A		250V-10 / 16A		250V-10 / 16A		250V-10 / 16A	
795x258x179	660x475x242	795x258x179	660x475x242	795x258x179	740x530x230	795x258x179	660x475x242
31.3x10.2x7.0	26.0x18.7x9.5	31.3x10.2x7.0	26.0x18.7x9.5	31.3x10.2x7.0	29.1x20.9x9.1	31.3x10.2x7.0	26.0x18.7x9.5
7.5	25.1	7.5	25.1	7.5	25.6	7.5	25.1
ø6.35 x 5		ø6.35 x 5		ø6.35 x 5		ø6.35 x 5	
ø9.52 x 5		ø9.52 x 5		ø9.52 x 5		ø9.52 x 5	
ø18 x 2000		ø18 x 2000		ø18 x 2000		ø18 x 2000	
Rotary		Rotary		Rotary		Rotary	
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
Cross-flow	Propeller	Cross-flow	Propeller	Cross-flow	Propeller	Cross-flow	Propeller
steel	steel	steel	steel	steel	steel	steel	steel
11	20	11	20	11	25	11	20
2ROW 10STEP	1ROW 18STEP	2ROW 10STEP	1ROW 18STEP	2ROW 10STEP	1ROW 24STEP	2ROW 10STEP	1ROW 18STEP
CAPILLARY TUBE		CAPILLARY TUBE		CAPILLARY TUBE		CAPILLARY TUBE	
280		360		360		280	
630		650		490		600	
RAC 12043-9622		RAC 12144-9622		RAC 12144-9622		RAC 12086-9622	
		INDOOR UNIT : DB27˚C WB19˚C		OUTDOOR UNIT : DB35˚C WB24˚C			
		INDOOR UNIT : DB32˚C WB23˚C		OUTDOOR UNIT : DB43˚C WB26˚C			

MEMO



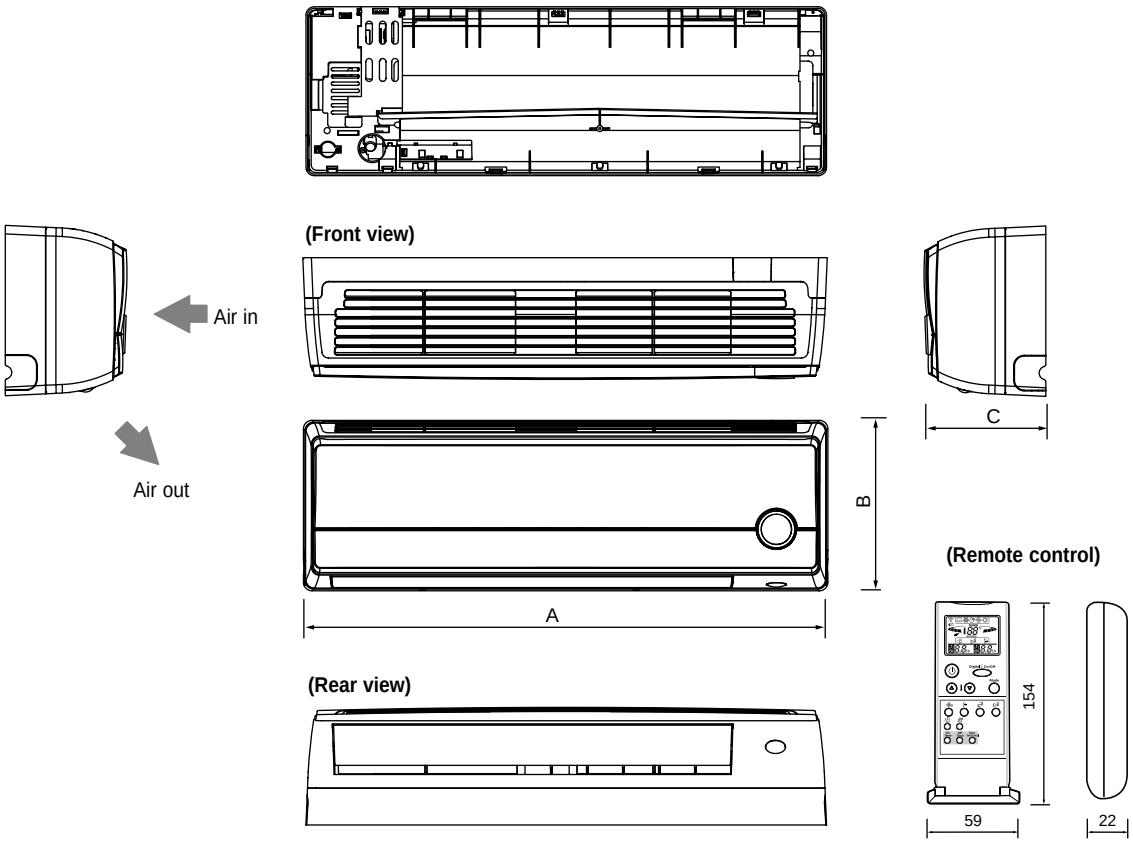
Outline & Dimension

3-1. Indoor Unit

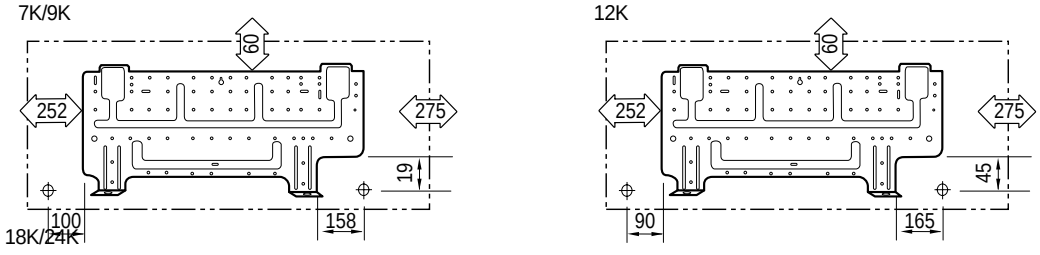
3-2. Outdoor Unit

Indoor Unit

3-1. Indoor Unit



(Installation plate)

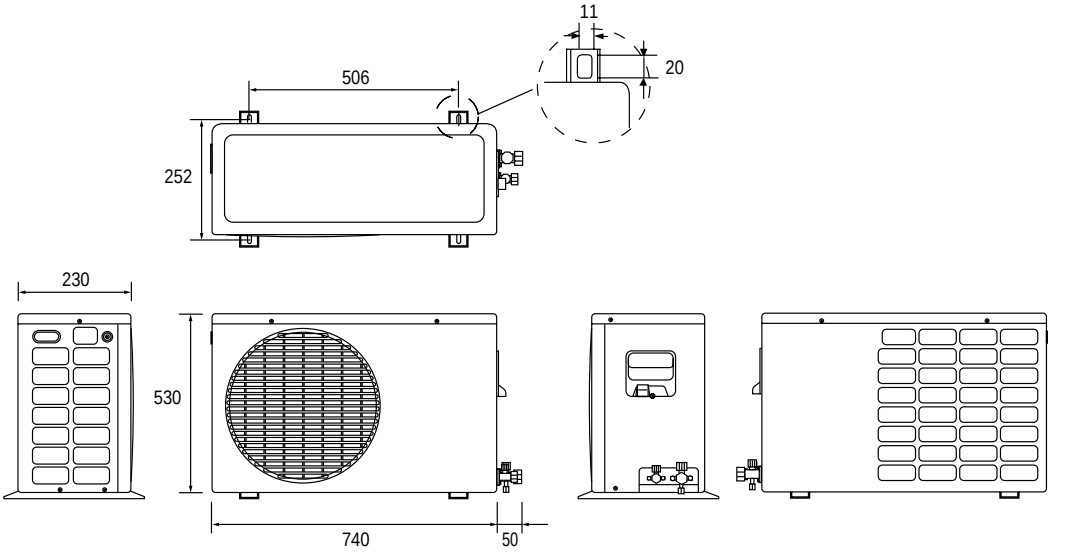


Type	A	B	C
7K / 9K	795	258	179
12K	890	285	179

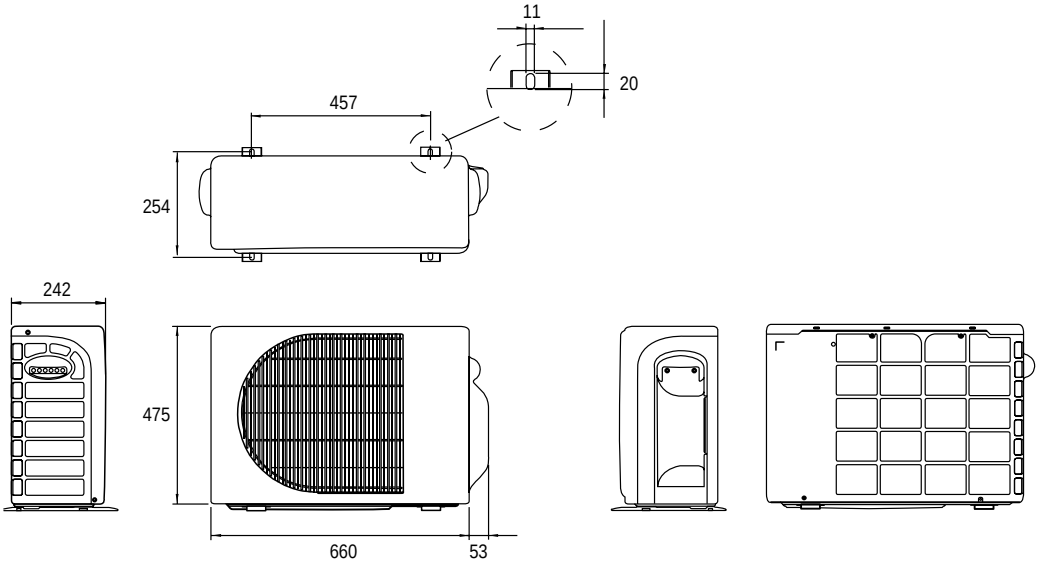
Outdoor Unit

3-2. Outdoor Unit

■ 7K / 9K / 12K (A/C series)

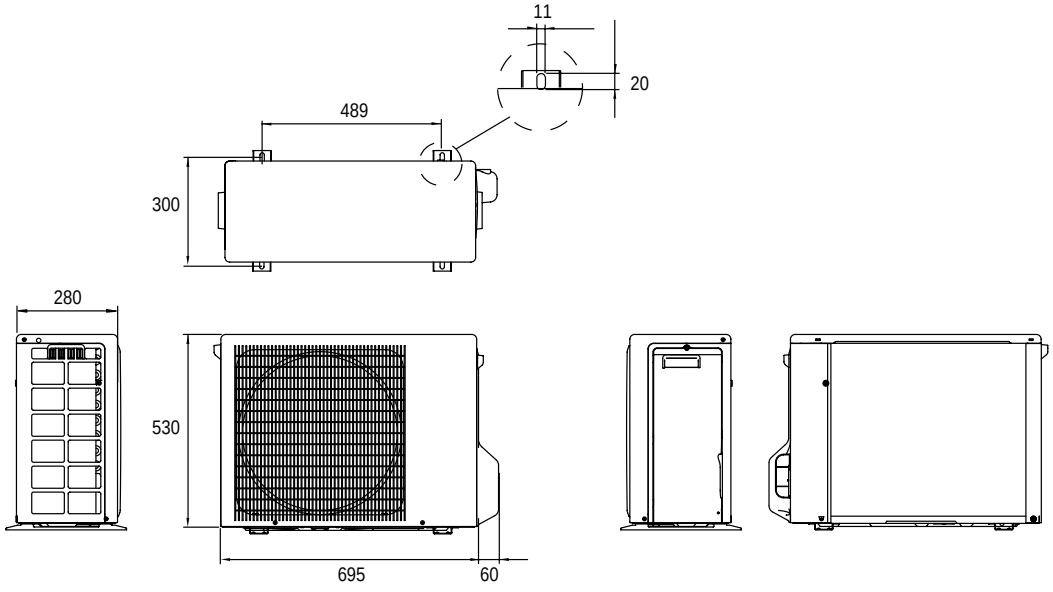


■ 7K / 9K (B/D series)



Outdoor Unit (Cont.)

■ 12K (B/D series)



MEMO



Performance Data

4-1. Performance Data

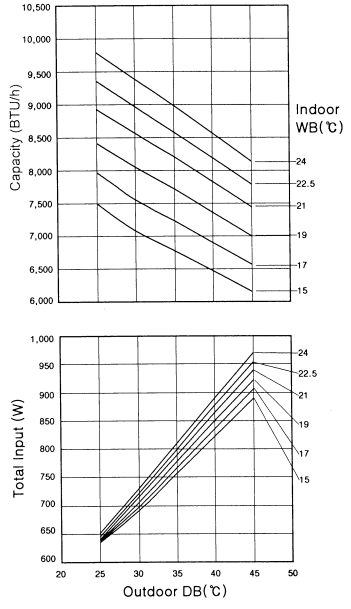
Performance Data

4-1. Performance Data

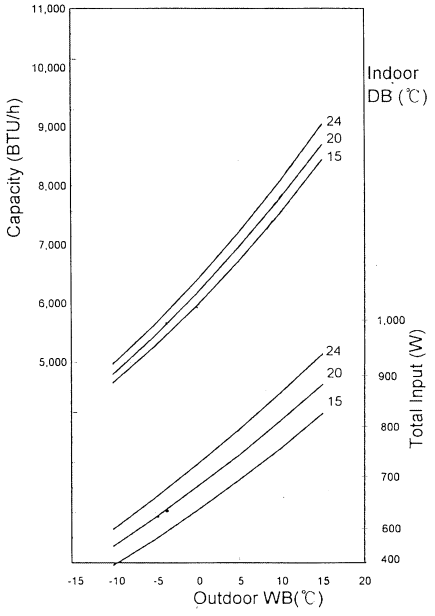
4-1-1. Capacity

● **7,000BTU**

<Cooling>

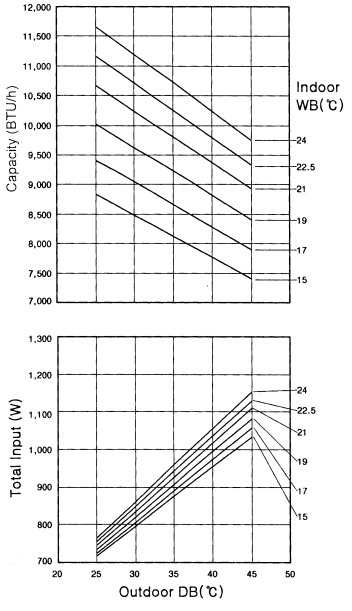


<Heating>

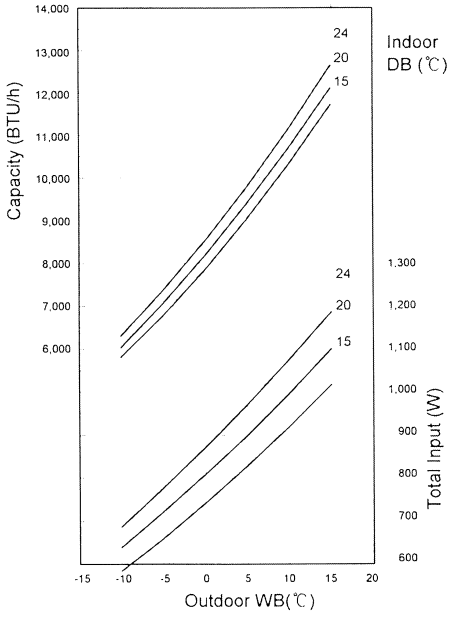


● **9,000BTU**

<Cooling>



<Heating>

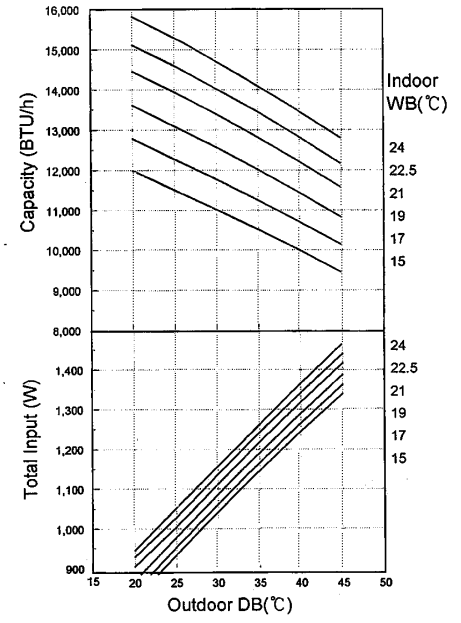


Performance Data (Cont.)

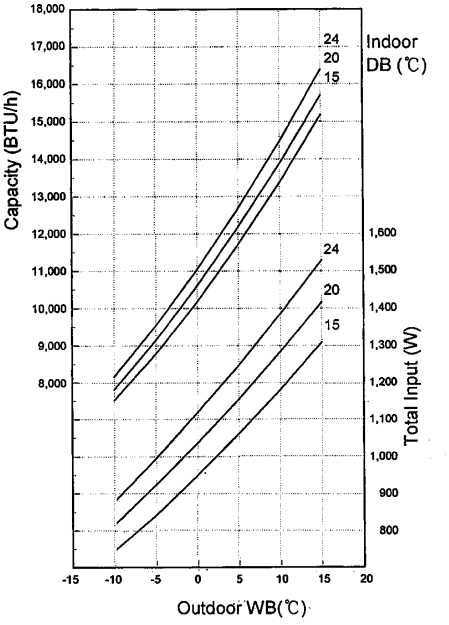
4-1-1. Capacity (Cont.)

● **12,000BTU**

<Cooling>

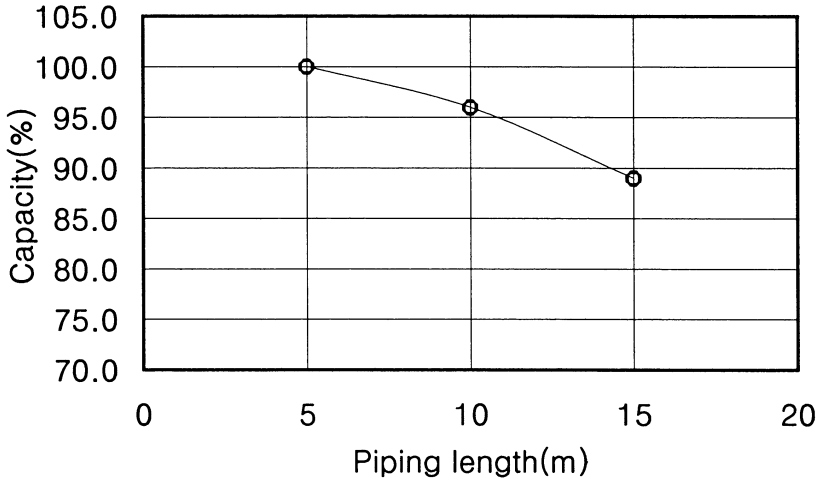


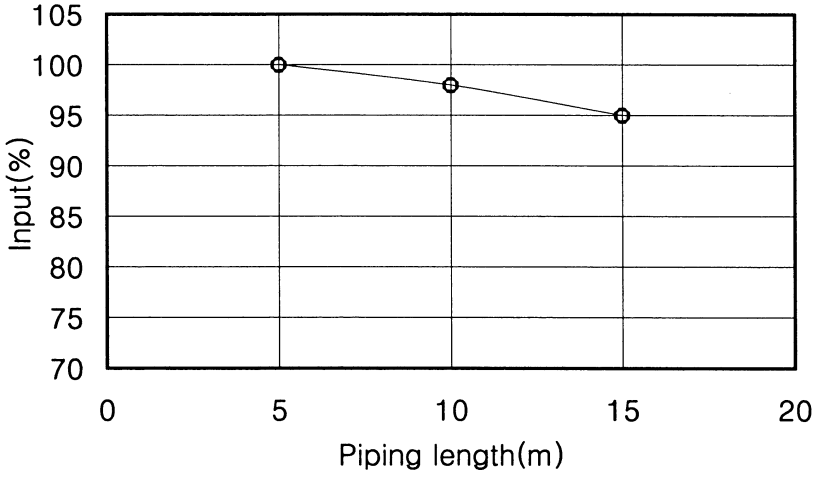
<Heating>



Performance Data (Cont.)

4-1-2. Cooling Capacity Correction Factors





MEMO



Installation

5-1. Selecting Area for Installation

5-2. Installation Diagram of Indoor Unit and Outdoor Unit

5-3. Performing Leak Tests

5-4. Placing the Indoor Unit in Position

5-5. Checking and Testing Oeprations

Selecting Area for Installation

Select an area for installation that is suitable to customer's needs.

5-1. Selecting Area for Installation

5-1-1. Indoor Unit

1. Make sure that you install the indoor unit in an area providing good ventilation.
   It must not be blocked by an obstacle affecting the airflow near the air inlet and the air outlet.

2. Make sure that you install the indoor unit in an area allowing good air handling and endurance of vibration of the indoor unit.

3. Make sure that you install the indoor unit in an area where there is no source of heat or vapor nearby.

4. Make sure that you install the indoor unit in an area from which hot or cool air is spread evenly in a room.

5. Make sure that you install the indoor unit in an area away from TVs, audio units, cordless phones, fluorescent lighting fixtures and other electrical appliances (at least 1 meter).

6. Make sure that you install the indoor unit in an area which provides easy pipe connection with the outdoor unit, and easy drainage for condensed water.

7. Make sure that you install the indoor unit in an area which is large enough to accomodate the measurements shown in figure on the next page.

CAUTION

- It is harmful to the air conditioner if it is used in the following environments: greasy areas (including areas near machines), salty areas such as coast areas, areas where sulfuric gas is present such as hot spring areas. Contact your dealer for advice.

Selecting Area for Installation (Cont.)

5-1-2. Outdoor Unit

1. Make sure that you install the outdoor unit in area not exposed to the rain or direct sun light.(Install a separate sunblind if exposed to direct sun light.)

2. Make sure that you install the outdoor unit in area allowing the good air moment, not amplifying noise or vibration, especially to avoid disturbing neighbours. (Fix the unit firmly if it is mounted in a high place.)

3. Make sure that you install the outdoor unit in area providing the good ventilation and which is not dusty. It must not be blocked by any obstacle affecting the airflow near the air inlet and the air outlet.

4. Make sure that you install the outdoor unit in area free from animals or plants.

5. Make sure that you install the outdoor unit in area not blocking the traffic.

6. Make sure that you install the outdoor unit in area easy to drain condensed water from the indoor unit.

7. Make sure that you install the outdoor unit in area which provides easy connection within the maximum allowable length of a coolant pipe.

If you have used...	Then...
More than “A” metres of piping	“B”g of refrigeranr (R22) must be added for <u>each</u> extra meter.
Less than “A” meres of piping	The purge time is ormal.

MODEL	A	B
✻✻07 / 09✻✻	7.5	20
✻✻12✻✻	7.5	30

8. Make sure that you install the outdoor unit in an area which is large enough to accommodate the measurements shown in figure on the next page.

5-1-3. Remote Control Unit

1. Make sure that you use the remote control unit in an area free from obstacles such as curtains etc, which may block signals from the remote control unit.

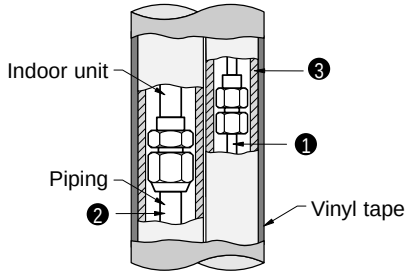
2. Make sure that you put the remote control unit in an area not exposed to direct sunlight, and where there is no source of heat.

3. Make sure that you use the remote control unit in an area away from TVs, audio units, cordless phones, fluorescent lighting fixtures and other electrical appliances (at least 1 meter).

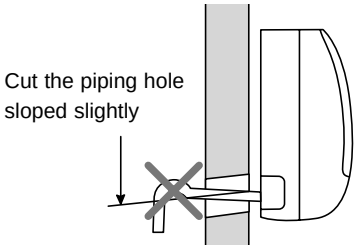
Installation Diagram of Indoor Unit and Outdoor Unit

5-2. Installation Diagram of Indoor Unit and Outdoor Unit

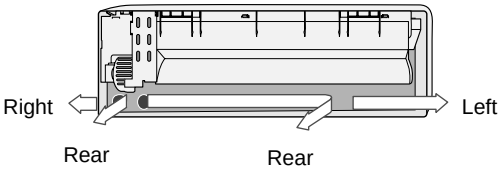
A Indoor unit gas leak test



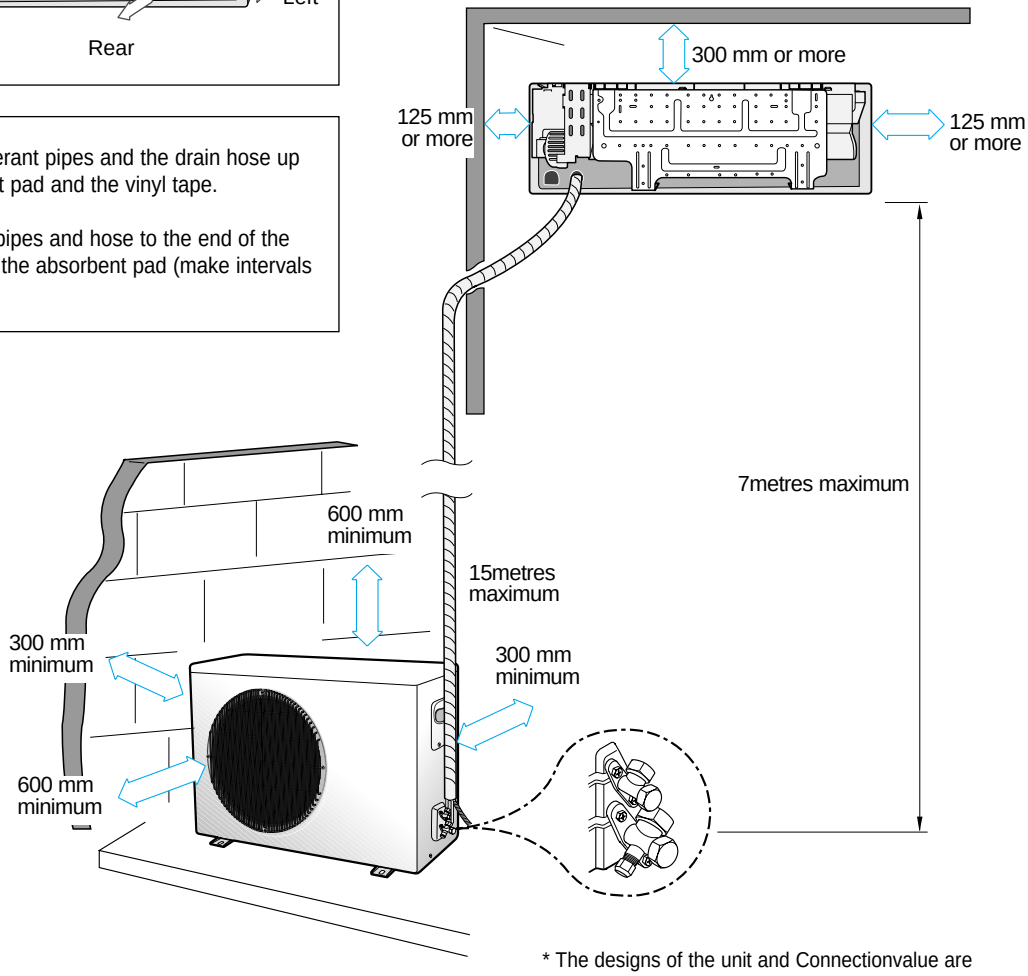
B Drain hose installation



Piping may be laid to the rear, left, right or down.



- Wrap the refrigerant pipes and the drain hose up in the absorbent pad and the vinyl tape.
- Triply wind the pipes and hose to the end of the indoor unit with the absorbent pad (make intervals of 20mm)



* The designs of the unit and Connectionvalue are subject to Change according to the model.

Installation Diagram of Indoor Unit and Outdoor Unit (Cont.)

5-2-1. Fixing the Installation Plate

1. Determine the position of the pipe and drain hose hole refering to the right figure and drill the hole with an inner diameter of 65mm so that it slants slightly downwards.

2. **If you are fixing the indoor unit to a… Then follow Steps…**

Wall	**3.**
Window frame	**4 to 6.**

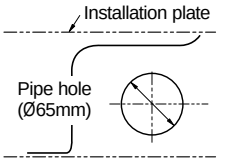
3. Fix the installation plate to the wall in a manner appropriate to the weight of the indoor unit.

   If you are mounting the plate on a concrete wall with anchor bolts, anchor bolts must not be projected by more than 20mm.

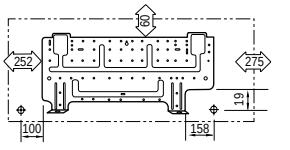
4. Determine the position of the wooden uprights to be attached to the window frame.

5. Attach the wooden upright to the window frame in a manner appropriate to the weight of the indoor unit.

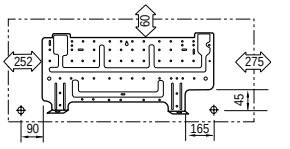
6. Using tapped screws, attach the installation plate to the wooden upright, as illustrated in the last figure opposite.



7K/9K (Unit : mm)



12K



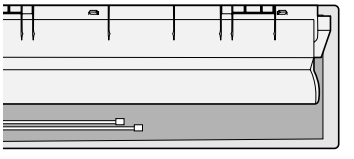
5-2-2. Purging the Unit

On delivery, the indoor unit is loaded with an inert gas. All this gas must therefore be purged before connecting the assembly piping. To purge the inert gas, proceed as follows.

Unscrew the cap at the end of each pipe.

Result *All inert gas escapes from the indoor unit.*

◆ To prevent dirt or foreign objects from getting into the pipes during installation, do NOT remove caps completely until you are ready to connect the piping.



Installation Diagram of Indoor Unit and Outdoor Unit (Cont.)

5-2-3. Connecting the Assembly Cable (Cooling Only)

The outdoor unit is powered from the indoor unit via the assembly cable. (7K/9K/12K)

1. Extend the assembly cable if necessary.

2. Open the front grille by pulling on the tab on the lower right and left sides of the indoor unit.

3. Remove the screw securing the connector cover.

4. Pass the assembly cable through the rear of the indoor unit and connect the assembly cable to terminals.
◆ Each wire is labelled with the corresponding terminal number.

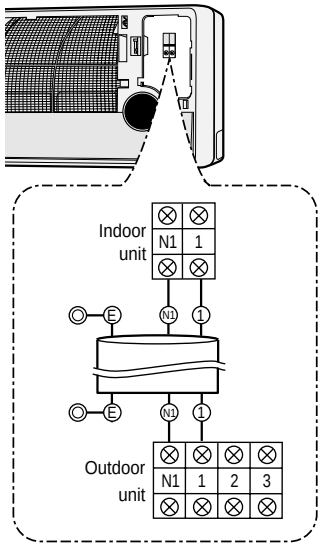
5. Firmly fix the ass'y cable with clamp wire holder.

6. Pass the other end of the cable through the 65mm hole in the wall.

7. Replace the connector cover, carefully tightening the screw.

8. Close the front grille.

9. For further details on how to plug the other end of the assembly cable into the outdoor unit.



5-2-4. Connecting the Assembly Cable (Heat Pump)

The outdoor unit is powered from the indoor unit via the assembly cable. (7K/9K/12K)

1. Extend the assembly cable if necessary.

2. Open the front grille by pulling on the tabs on the lower right and left sides of the indoor unit.

3. Remove the screw securing the connector cover.

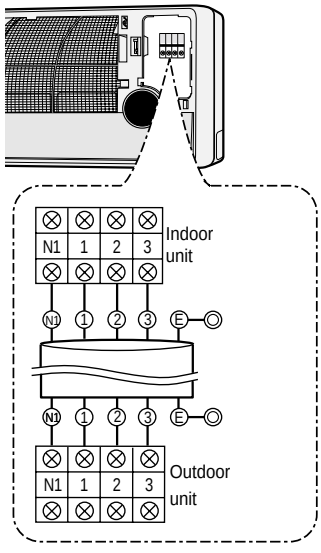
4. Pass the assembly cable through the rear of the indoor unit and connect the assembly cable to terminals
◆ Each wire is labelled with the corresponding terminal number.

5. Pass the other end of the cable through the 65 mm hole in the wall.

6. Replace the connector cover, carefully tightening the screw.

7. Close the front grille.

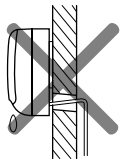
8. For further details on how to plug the other end of the assembly cable into the outdoor unit.



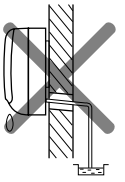
Installation Diagram of Indoor Unit and Outdoor Unit (Cont.)

5-2-5. Installing and Connecting the Indoor Unit Drain Hose

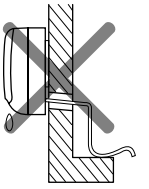
Care must be taken when installing the drain hose for the indoor unit to ensure that any condensed water is correctly drained outside. When passing the drain hose through the 65mm hole drilled in the wall, check that none of the following situation occur.



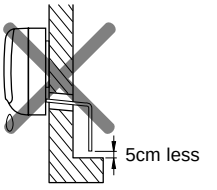
The hose must NOT slope upwards.



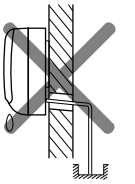
The end of the drain hose must NOT be placed in water.



Do NOT bend the hose in different directions.



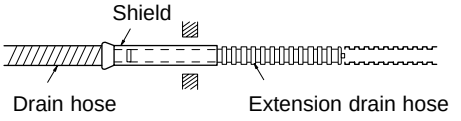
Keep a clearance of at least 5cm between the end of the hose and the ground.



Do NOT place the end of the drain hose in a hollow.

To install the drain hose, proceed as follows

1. If necessary, connect the 2-meter extension to the drain hose.
2. If you are using the extension, insulate the inside part of the extension drain hose with a shield.
3. Pass the drain hose under the refrigerant piping, taking care to keep the drain hose tight.
4. Pass the drain hose through the hole in the wall, making sure that it is sloping downwards, as shown in the illustrations above.

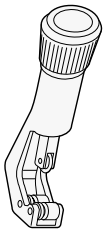


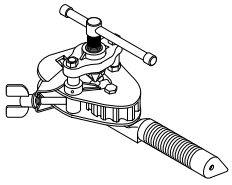
The hose will be fixed permanently into position once the whole installation has been tested for gas leaks.

Installation Diagram of Indoor Unit and Outdoor Unit (Cont.)

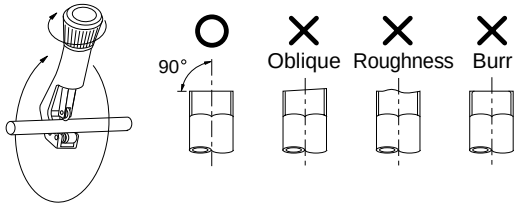
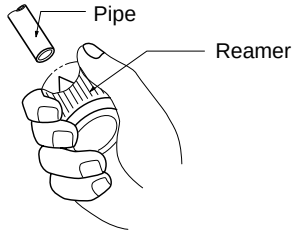
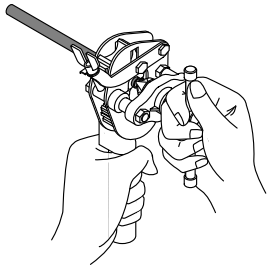
5-2-6. Flare Modification

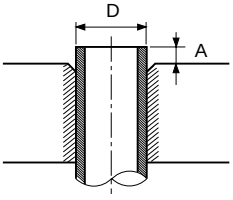
● **TOOLS USED**





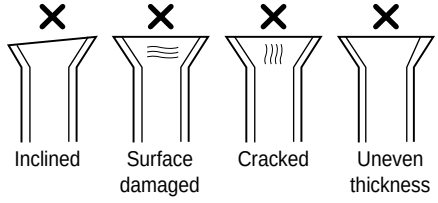
● **FLARE MODIFICATION PROCEDURE**

1. Cut the pipe using a pipe cutter.	
2. Remove burrs at the tip of the pipe cut. **CAUTION** • Burrs not removed may result in leakage of gas.	
3. Insert a flare nut into the pipe and modify flare.	



Outer diameter	A(mm)
ø6.35mm	1.3
ø9.52mm	1.8
ø12.7mm	2.0

*** Unproper flaring**



Installation Diagram of Indoor Unit and Outdoor Unit (Cont.)

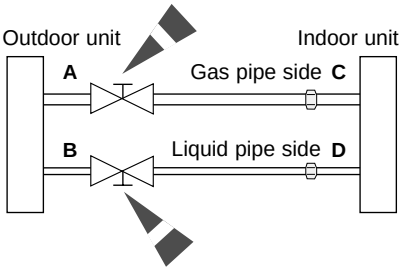
5-2-7. Air-Purge Procedure

The outdoor unit is loaded with sufficient R-22 refrigerant for 5 metres of piping. The air in the indoor unit and in the pipe must be purged. If air remains in the refrigeration pipes, it will affect the compressor, reduce to cooling/heating capacity and could lead to a malfuction. Refrigerant for air purging is not charged in the outdoor unit. Use Vacuum Pump as shown at the figure.

1. Connect each assembly pipe to the appropriate valve on the outdoor unit and tighten the flare nut.

2. Referring to the illustration opposite, tighten the flare nut first manually and then with a wrench, applying the following torque.

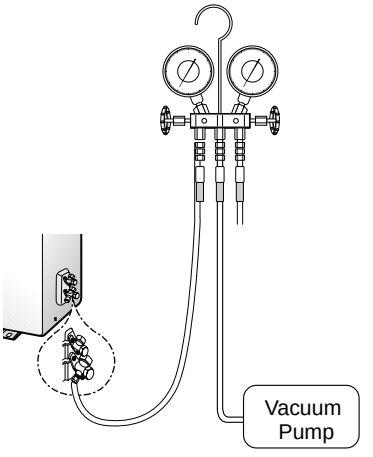
Outer Diameter	Torque(kg·cm)
6.35mm	144~176
9.52mm	333~407
12.70mm	504~616



3. Connect the charging hose of low pressure side of manifold gauge to the packed valve having a service port as shown at the figure.

4. Open the valve of the low pressure side of manifold gauge counterclockwise.

5. Purge the air from the system using vacuum pump for about 10 minutes.
- ◆ Close the valve of the low pressure side of manifold gauge clockwise.
- ◆ Make sure that pressure gauge show -0.1MPa(-76cmHg) after about 10minutes.
  This procedure is very important in order to avoid gas leak.
- ◆ Turn off the vacuum pump
- ◆ Remove the hose of the low pressure side of manifold gauge.



* The designs and shape are subject to change according to the model.

Adding Refrigerant

Refrigerant must be added if the piping measures more than 5 metres in length. This operation can only be performed by a qualified refrigeration specialist.

☛	If you have used...	Then...
	More than “A” metres of piping	“B” of refrigerant (R-22) must be added for each extra meter.
	Less than “A” metres of piping	The purge time is normal.

Refer to the Service Manual for more details on this operation.

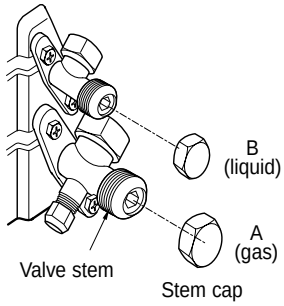
MODEL	A	B
✳✳07/09✳✳	7.5	20
✳✳12✳✳	7.5	30

Installation Diagram of Indoor Unit and Outdoor Unit (Cont.)

6. Set valve cork of both liquid side and gas side of packed valve to the open position.

7. Mount the valve stem nuts and the service port cap to the valve, and tighten them at the torque of 18N·m with a torque wrench.

8. Check for gas leakage.
◆ At this time, especially check for gas leakage from 3-way valve's stem nuts, and from the service port cap.

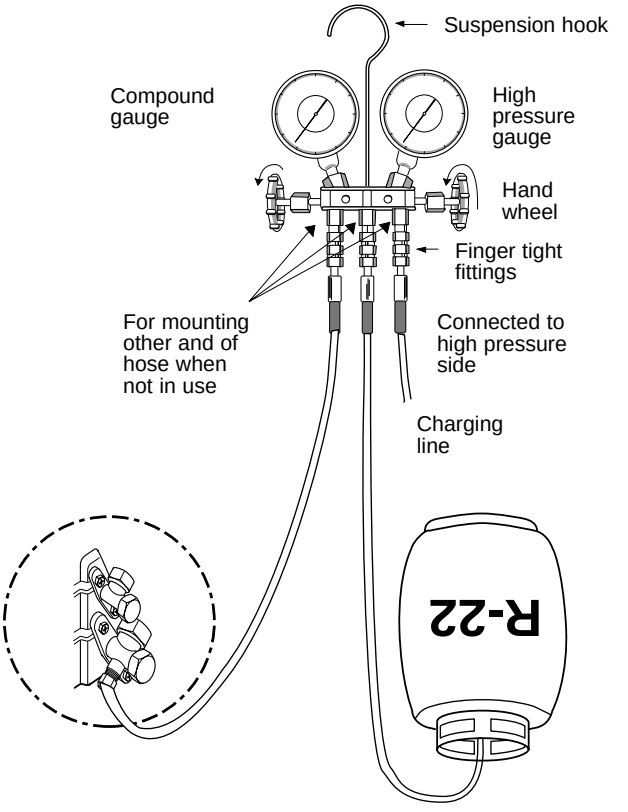


Installation Diagram of Indoor Unit and Outdoor Unit (Cont.)

5-2-8. Refrigerant Refill

- **Refill an air-conditioner with refrigerant when refrigerant has been leaked at installing or using.**

1. Purge air(for new installation only).
2. Turn the 3-way valve clockwise to close, connect the pressure gauge (low pressure side) to the service valve, and open the 3-way valve again.
3. Connect the tank to refill with refrigerant
4. Set the unit to cool operation mode.
5. Check the pressure indicated by the pressure gauge(low pressure side).
   * Standard pressure is should be 4.5~5.5kg/cm^2 in a regular, high operation mode.
6. Open the refrigerant tank and fill with refrigerant until the rated pressure is reached.
   * It is recommended not to pour the refrigerant in too quickly, but gradually while operating a pressure valve.
7. Stop operation of the air conditioner.
8. Close the 3-way valve, disconnect the pressure gauge, and open the 3-way valve again.
9. Close the cap of each valve.



Installation Diagram of Indoor Unit and Outdoor Unit (Cont.)

5-2-9. Refrigerant Adjustment

Class	At installation		At service	
Connection Pipe Length	Air-Purge Method	Refrigerant Adjustment	Air-Purge Method	Refrigerant Quantity
Standard 5m	Refer to the detailed Air-Purge Procedure	Unnecessary	Purge air using a vacuum pump or an additional refrigerant cylinder.	refer to specification sheet
Max. ~15m (24K : 20m)		Add “A” of refrigerant (R-22) for every 1m.		Add “A” of refrigerant (R-22) for every 1m.

It would be the best choice to use the standard tube length to keep the basic quality of Room Air conditioner, for example cooling and heating capacity, sound level, vibration level, and reliability.
But, according to a certain different installation condition, the connection tube length could be changed in the recommendation length that is shown above.
In this case, installer should keep the installation condition to keep the quality of Room Air conditioner.

MODEL	“A”	“B”
7K/ 9K	20(g/m)	7.5
12K	30(g/m)	7.5

❋ *Refrigerant should be charged additionally as written above according to the change of the length of the connection tube. It needs to affect the decrease in cooling and heating capacity or of the reliability of compressor that may be caused by a lack of refrigerant.*

❋ *Installation position difference between the indoor unit and the outdoor unit should not exceed over than “B” meters.*

❋ *When the connection pipe is been extended longer than 5 meters, it might need to change the diameter of the electrical wire to a larger size in order to keep a voltage drop for starting room air conditioner is not less than 85% of the rated voltage. And then, a voltage meter will be useful to check the rate of the voltage drop.*

5-2-10. Flare Nut Fixing Torque

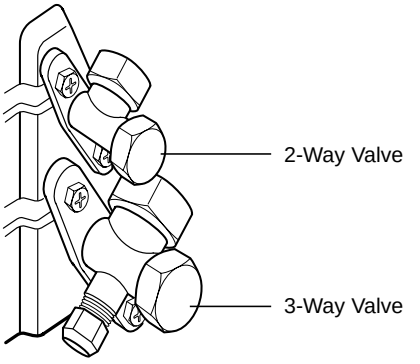
Outer diameter	Torque (kg-cm)	
	Fixing Torque	Final Torque
ø 6.35 mm (Liquid Side)	160	200
ø 9.52 mm (Gas Side)	300	350
ø 12.7 mm (Gas Side)	500	550

Installation Diagram of Indoor Unit and Outdoor Unit (Cont.)

5-2-11. "Pump down" Procedure

Pump down will be carried out when an evaporator is replaced or when the unit is relocated in another area.

1. Remove the caps from the 2-way valve and the 3-way valve.
2. Turn the 3-way valve clockwise to close and connect a pressure gauge (low pressure side) to the service valve, and open the 3-way valve again.
3. Set the unit to cool operation mode. (Check if the compressor is operating.)
4. Turn the 2-way valve clockwise to close.
5. When the pressure gauge indicates "0" turn the 3-way valve clockwise to close.
6. Stop operation of the air conditioner.
7. Close the cap of each valve.



Relocation of the Air Conditioner

• Refer to this procedure when the unit is relocated.

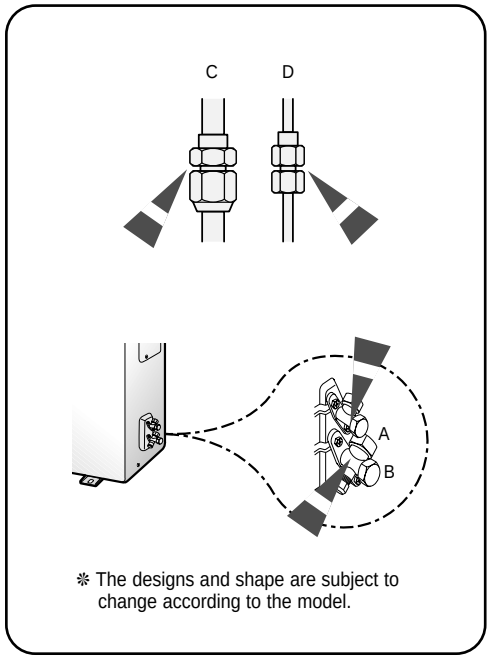
1. Carry out the pump down procedure (refer to the details of 'pump down').
2. Remove the power cord.
3. Disconnect the assembly cable from the indoor and outdoor units.
4. Remove the flare nut connecting the indoor unit and the pipe.
   At this time, cover the pipe of the indoor unit and the other pipe using a cap or vinyl plug to avoid foreign material entering.
5. Disconnect the pipe connected to the outdoor unit.
   At this time, cover the valve of the outdoor unit and the other pipe using a cap or vinyl plug to avoid foreign material entering.
6. Make sure you do not bend the connection pipes in the middle and store together with the cables.
7. Move the indoor and outdoor units to a new location.
8. Remove the mounting plate for the indoor unit and move it to a new location.

Performing Leak Tests

5-3. Performing Leak Tests

- **Before completing the installation (insulation of the cable, hose and piping and fixing of the indoor unit to the installation plate), you must check that there are no gas leaks.**

To check for gas leaks on the...	Then, using a leak detector, check the...
Indoor unit	Flare nuts at the end of sections C and D.
Outdoor unit	Valves on sections A and B.



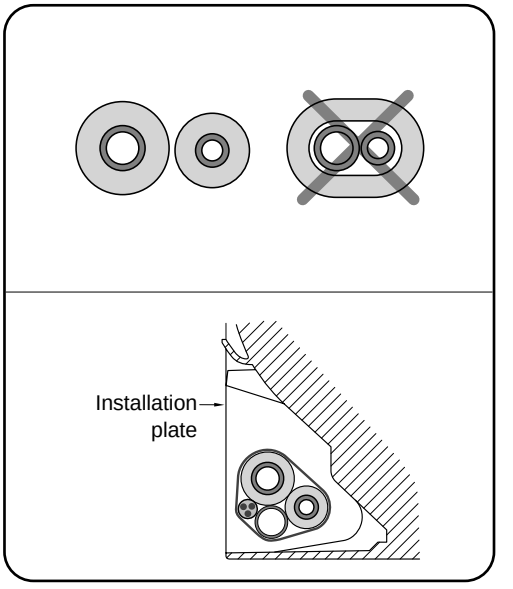
❊ The designs and shape are subject to change according to the model.

Placing the Indoor Unit in Position

5-4. Placing the Indoor Unit in Position

- **Once you have checked that there are no leaks in the system, you can insulate the piping, hose and cables and place the indoor unit on the installation plate.**

1. To avoid condensation problems, place heat-resistant polyethylene foam separately around each refrigerant pipe in the lower part of the indoor unit.
2. Wind insulating tape around the pipe, assembly cable and drain hose.
3. Place the resulting bundle carefully in the lower part of the indoor unit, making sure that it does not jut out from the rear of the indoor unit.
4. Hook the indoor unit up to the installation plate and move the unit to the right and left until you are sure that it is securely to place in.
5. Finish wrapping insulating tape around the rest of the piping leading to the outdoor unit.
6. Using clamps (optionally supplied), attach the piping to the wall wherever possible.



Checking and Testing Operations

5-5. Checking and Testing Operations

- **To complete the installation, perform the following checks and tests to ensure that the air conditioner is operating correctly.**

1. Review all the following elements in the installation:

- ◆ Installation site strength
- ◆ Piping connection tightness to detect any gas leakages
- ◆ Connection wiring
- ◆ Heat-resistant insulation of the piping
- ◆ Drainage
- ◆ Earthing wire connection
- ◆ Correct operations (follow the steps below)

2. Press the On/Off button.

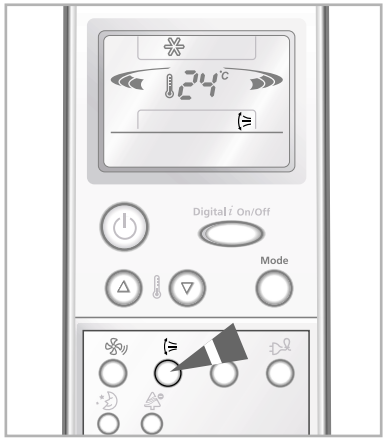
Result
- ◆ *The indicator lights on the indoor unit flash at half-second intervals.*
- ◆ *While the indoor unit opens, the indoor unit fan runs to start.*

3. Press the Mode button.

Result
- ◆ *The outdoor unit operates in cooling or heating mode as following the room temperature.*

4. Air flow direction

◆ Press the button and check that the air flow blades work properly.



MEMO



Features & Operation

6-1. The Feature of key in Remote Control

6-2. Details for Operation Property

6-3. Operating Recommendations

6-4. Temperature and Humidity Ranges

6-5. Pressure Graph

The Feature of key in Remote Control

6-1. The Feature of key in Remote Control

NO	NAMED OF KEY	FUNCTION OF KEY
1	(On/Off)	On/Off button. Press the button to stop or run the air conditioner.
2	(UP)	Temperature adjustment button(UP). To increase the temperature by the pressing the temperature button.
	(DOWN)	Temperature adjustment button(DOWN). To decrease the temperature by the pressing the temperature button.
3	Mode	Mode selection button. Each time you press this button Mode is changed in the following order ▶ **In case of Heat pump model** Auto → Cool → Dry → Fan → Heat ▶ **In case of Cooling only model** Auto → Cool → Dry → Fan Auto : Auto Mode, Fan : Fan Only, Cool : Cool Mode, Heat : Heat Mode, Dry : Dry Mode
4		Fan speed adjustment button. Each time you press this button, FAN SPEED is changed in the following order. Low → Medium → High Automatic(rotated : → → →)
5		Swing button. It adjusts the airflow to upward and downward.
6	TURBO	Turbo button. The air conditioner cools or heats the room as quickly as possible. After 30minutes, the air conditioner is reset automatically to the previous mode.
7		Energy saving button. If you wish to save energy when using your air conditioner, select the Energy saving mode with the button.
8		Sleep button. The sleep timer can be used when you are cooling or heating your room to switch the air conditioner off automatically after a period of six hours.

The Feature of key of Remote Control (Cont.)

The Feature of key in Remote Control (cont.)

NO	NAMED OF KEY	FUNCTION OF KEY
9		Anion button. Press the  button to generate ion from the air conditioner.
		Air cleaner button. Press the  button to operate air cleaner from the air conditioner.
10		On Timer button. The On Timer enables you to **switch on** the air conditioner automatically after a given period of time that is from 30 minutes to 24 hours. To set the operating time, press the  button one or more times until the required time display.
11		Off Timer button. The Off Timer enables you to **switch off** the air conditioner automatically after a given period of time that is from 30 minutes to 24 hours. To set the operating time, press the  button one or more times until the required time display.
12		Timer Set/Cancel button. After setting On Timer or Off Timer, press the  button to set it completely. And press the  button again to cancel On Timer or Off Timer set.
13		Digital *i* On/Off button. If you want to turn off the display during operation press the  button.

Details for Operation Property

6-2. Details for Operation Property

1. AUTO MODE : In this mode, operation mode(COOL, HEAT) is selected automatically by the room temperature of initial operation.

   ▶ **In case of Heat pump model.**

Room Temp	Operation Type
Tr ≥ 21°C+ΔT	Cool Operation (Set Temp:24˚C+ΔT)
21°C +ΔT>Tr	Heat Operation (Set Temp:22˚C+ΔT)

   ▶ **In case of Cooling only model.**

Operation Type	Room Temp.	
Cool Operation	Tr ≥ 25°C+ΔT	Compressor ON
	Tr ≤ 24°C+ΔT	Compressor OFF

   ΔT= -1°C, -2°C, 0°C, +1°C, +2°C
   ΔT is controlled by setting temperature up/down key of remote control

2. COOL MODE : The unit operates according to the difference between the setting and room temperature. (18°C~30°C)

3. HEAT MODE(In case of Heat pump model) :
   The unit operates according to the difference between the setting and room temperature.(16°C~30°C)
   *Prevention against cold wind : In order to prevent the cool air from flowing out at the heat mode, the indoor fan does not operate or operates very slowly in the following cases. At this time, the indoor heat exchanger will be preheating.
   - For 3~5 minutes after the initial operation
   - For deicing operation
   - The operation of an indoor fan in accordance with the temperature of an indoor heat exchanger

The temperature of indoor heat exchanger	Indoor fan speed
below 28˚C	off
28˚C~below 34˚C	LL Speed
34˚C~below 40˚C	L Speed
above 40˚C	Setting Speed

   *High temperature release function : It is a function to detect an outdoor overload by the sensor of an indoor heat exchanger and to turn the outdoor fan or the compressor ON/OFF for safety.
   *Deice : Deicing operation is controlled by indoor unit's heat exchanger temperature and accumulating time of compressor's operation.
   Deice ends by sensing of the processing time by deice condition.

4. DRY MODE : Has 3 states, each determined by room temperature.
   The unit operates in DRY mode.
   *Compressor ON/OFF Time is controlled compulsorily(can not set up the fan speed, always breeze).
   *Protective function : Low temperature release. (Prevention against freeze)

5. TURBO MODE : This mode is available in AUTO, COOL, HEAT, DRY, FAN MODE.
   When this button is pressed at first, the air conditioner is operated “powerful” state for 30 minutes regardless of the set temperature, room temperature.
   When this button is pressed again, or when the operating time is 30 minutes, turbo operation mode is canceled and returned to the previous mode.
   *But, if you press the TURBO button in DRY or FAN mode that is changed with AUTO mode automatically.

6. SLEEP MODE : Sleep mode is available only in COOL or HEAT mode.
   The operation will stop after 6 hours.
   *In COOL mode : The setting temperature is automatically raised by 1°C each 1hour When the temperature has been raised by total of 2°C, that temperature is maintained.
   *In HEAT mode : The setting temperature is automatically dropped by 1°C each 1hour.
   When the temperature has been dropped by total of 2°C, that temperature is maintained.

7. FAN SPEED : Manual (3 step), Auto (4 step)
   Fan speed automatically varies depending on both the difference between setting and the room temperature.

8. COMPULSORY OPERATION :
   For operating the air conditioner without the remote control.
   *The operating is the same function that AUTO MODE in the remote control.

Details for Operation Property (Cont.)

9. SWING : BLADE-H is rotated vertically by the stepping motor.
   *Swing Set : Press the button under the remote control is displayed on LCD the and the blades move up and down. If the one more time press the button, blades location is stop.

10. SETTING THE ON/OFF TIMER. :
    *ON TIMER : The On Timer enables you to switch on the air conditioner automatically after a given period of time. You can set the period of time from 30 minutes to 24 hours.
    *OFF TIMER : The Off Timer enables you to switch off the air conditioner automatically after a given period of time. You can set the period of time from 30 minutes to 24 hours.

11. SELF DIAGNOSIS

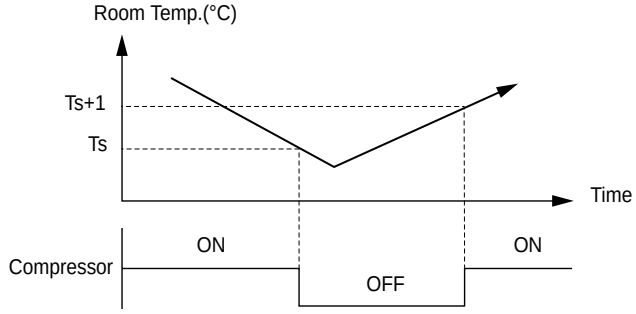
Description	LAMP of Display Monitor	
	DISPLAY:  ERROR DISPLAY PART: 	
	Set off	**Operating**
Indoor unit room temperature sensor error (open or short)	OFF	E1
Indoor unit heat exchanger temperature sensor error (open or short)	OFF	E2
Indoor fan motor malfunction	OFF	E3
EEPROM error	OFF	E6
Option error (option wasn't set up or option data error)	All lamp blinking	All lamp blinking

12. BUZZER SOUND : Whenever the On/Off button is pressed or whenever change occurs to the condition which is set up or select, the compulsory operation mode, buzzer is sounded "beep".

Details for Operation Property (Cont.)

6-2-1. Cooling Mode Operating

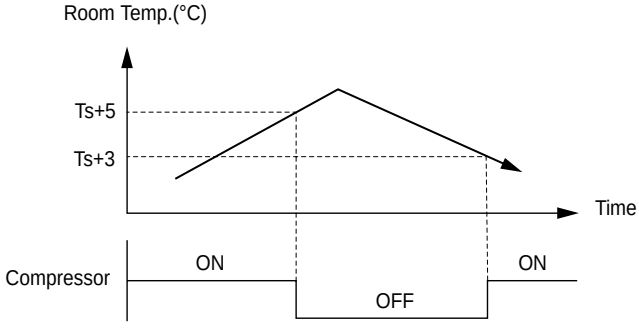
When selecting the Cooling Mode Operation, the unit will operate according to the setting by the remote controller and the operation is as well as the following. Room temperature can be set in 1°C steps in the range of 18 to 30°C.



♦ Ts means Remote Controller setting Temperature

6-2-2. Heating Mode Operation(In case of Heat pump model)

When selecting the Heating Mode Operation, the unit will operate according to the setting by the remote controller and the operation is as well as the following. Room temperature can be set in 1°C steps in the range of 16 to 30°C.



6-2-3. Automatic Operation

When Automatic operation is set by the remote controller, the air conditioner senses the room temperature then automatically selects the operation mode and setting temperature.

1. In case of Heat pump model.

	Operating Mode	Setting Temp.	Remarks
Room Temp ≥ 21°C + ΔT	Cooling	Tsp = 24°C + ΔT	ΔT = -2, -1, 0, 1, 2°C
Room Temp < 21°C + ΔT	Heating	Tsp = 22°C + ΔT	

◆ In case that Room Temp. ≥ 21°C + ΔT, the unit is operated in the Cool Mode.
◆ In case that Room Temp. < 21°C + ΔT, the unit is operated in the Heat Mode.
◆ ΔT means that user is able to change setting temperature within ±2°C.

2. In case of Cooling only model.

Operating Type	Room Temp.		Remarks
Cool Operation	Tr ≥ 25°C + ΔT	Compressor ON	ΔT = -2, -1, 0, 1, 2°C
	Tr ≤ 24°C + ΔT	Compressor OFF	

◆ In case the Room Temp. ≥ 25°C + ΔT, the unit is operated Compressor.
◆ In case the Room Temp. ≤ 24°C + ΔT, the unit is not operated Compressor.
◆ ΔT means that user is able to change setting temperature within ±2°C.

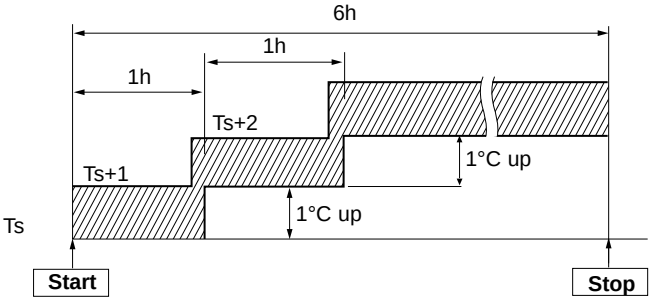
Details for Operation Property (Cont.)

6-2-4. Sleeping Operation

● AT COOLING MODE

When you set the sleep mode, the following movement will start to avoid over cooling.

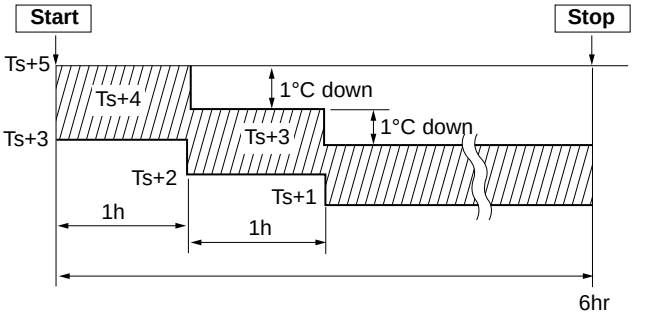
- ◆ The indoor fan speed is fixed by setting the remote controller.
- ◆ The setting temperature will rise by 1°C at the starting of operation and by 1°C one hour later.
- ◆ The operation will stop after 6 hours.



● AT HEATING MODE

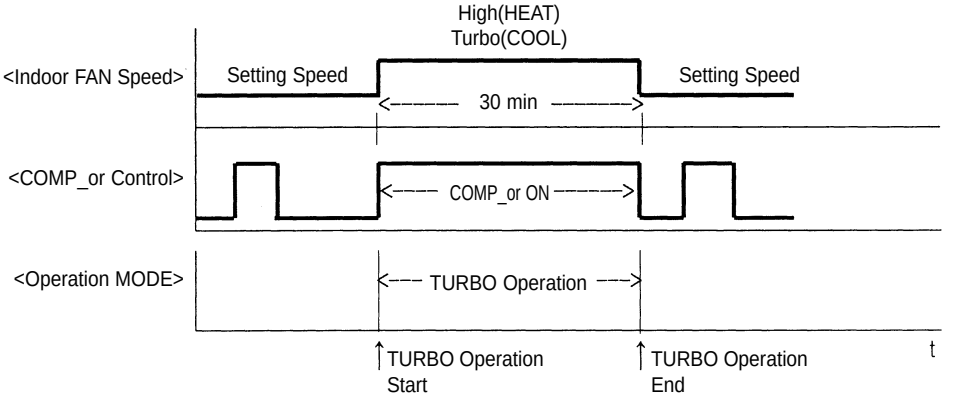
When you set the sleep mode, the following movement will start to avoid overheating.

- ◆ The indoor fan speed is fixed by setting the remote controller.
- ◆ The setting temperature will be dropped by 1°C at the starting of operation and by 1°C one hour later.
- ◆ The operation will stop after 6 hours.



6-2-5. Turbo Operation (Cooling or Heating Mode)

If turbo operation is selected during heating or cooling mode, compressor is operated for 30minutes regardless of room temperature. After 30minutes of turbo operation the unit will operate in normal state



Details for Operation Property (Cont.)

6-2-6. Energy saving operation control

● **In case of Cooling Only model**

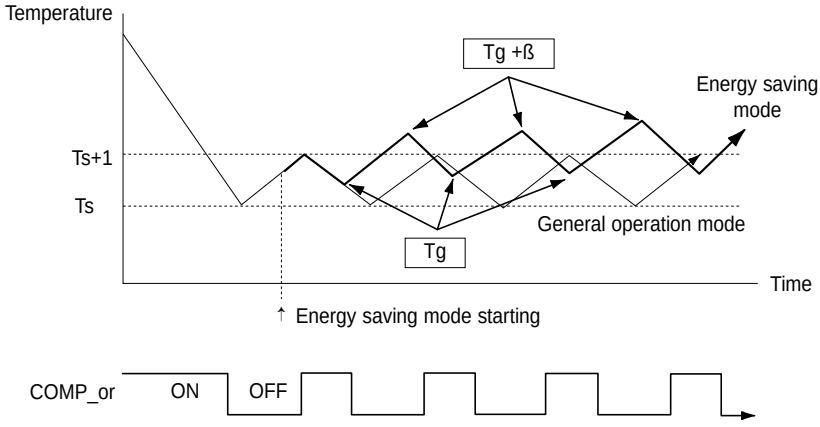
The Energy saving mode is applicable to only in both the COOL mode and AUTO mode.

● **In case of Heat Pump model**

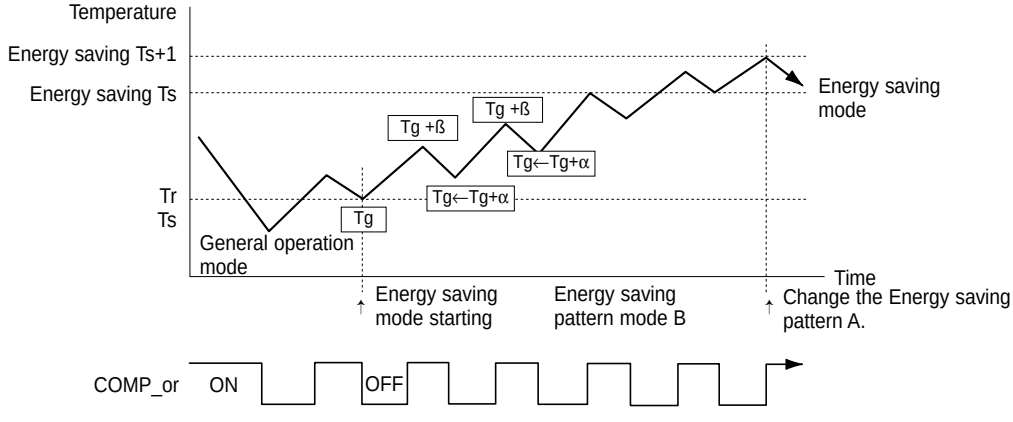
The Energy saving mode is applicable to only in the COOL mode.

◆ Energy saving operation specification
- If you select the Energy saving mode during automatic operation, the setting temperature(Ts) will be fixed to "the standard value +2°C"(26°C).
- If you select the Energy saving mode during cooling operation, you may set the room temperature from "26°C to 30°C", but if you hope to control the room temperature below 26°C in the Energy saving mode, the room temperature will be compelled to be 26°C.
- If you select the Energy saving mode, the up/down louver will enter the "Swing" status.

- OPERATION PATTERN A : In the Energy saving mode when Room Temperature(Tr) equals to the Setting Temperature(Ts) or over.



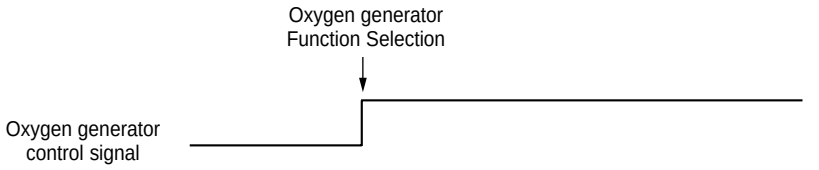
- OPERATION PATTERN B : In the Energy saving mode when Room Temperature(Tr) is below the Setting Temperature(Ts).



Details for Operation Property (Cont.)

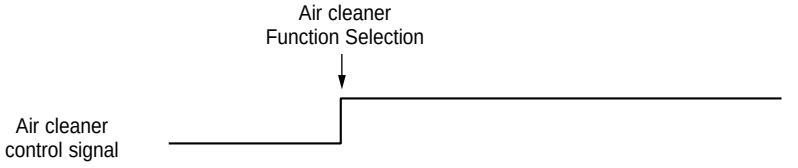
6-2-7. Oxygen generator control(Optional)

- ◆ If you press the 'Oxygen GENERATOR' button in the remote control, it will output the Oxygen Generator Control signal.
- ◆ The 'Oxygen GENERATOR' may be selected in all operation status(on or off)
- ◆ If you select the 'Oxygen' function during operation off, the system will enter the FAN mode, Oxygen function on, and low fan speed.



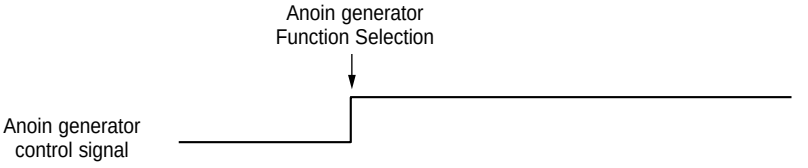
6-2-8. Air cleaner control(Optional)

- ◆ If you press the 'AIR CLEANER' button in the remote control, it will output the Air Cleaner Control signal
- ◆ The 'AIR CLEANER' may be selected in all operation status(on or off)
- ◆ If you select the 'AIR CLEANER' function after the above operation finishes, the system will enter the FAN mode, AIR CLEANER function on, and low fan speed.



6-2-9. Anion generator control(Optional)

- ◆ If you press the 'ANION GENERATOR' button in the remote control, it will output the ANION GENERATOR Control signal
- ◆ The 'ANION GENETOR' may be selected in all operation status(on or off)
- ◆ If you select the 'ANION GENERATOR' function after the above operation finishes, the system will enter the FAN mode, ANION GENERATOR function on, and low fan speed.



Details for Operation Property (Cont.)

6-2-10. Indoor fan control in the Heating Mode

Indoor fan is controlled depending on the temperature of indoor heat exchanger in the heating mode.

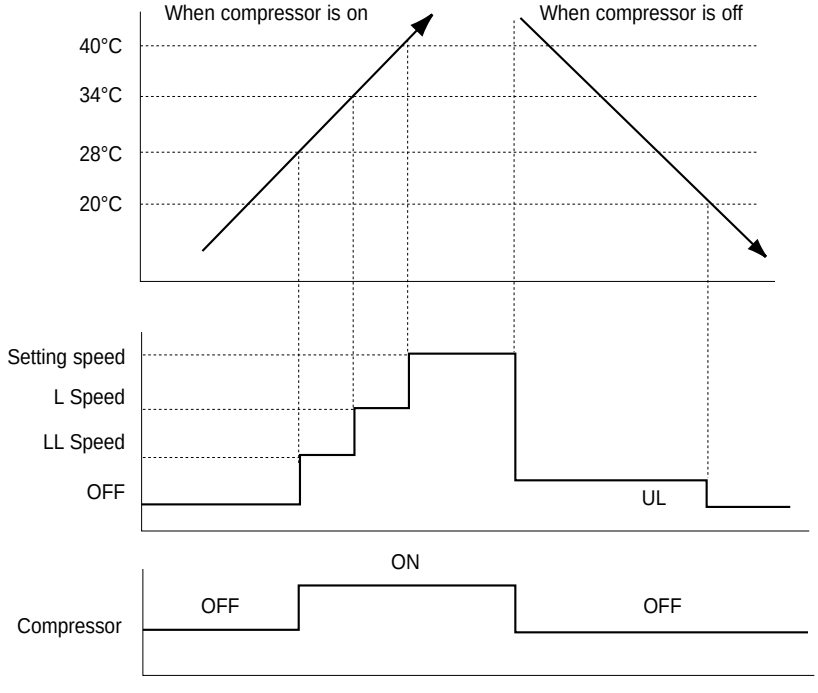
● INDOOR FAN CONTROL

◆ When compressor begins operating

The temperature of indoor heat exchanger	Indoor fan speed
below 28°C	off
28°C ~ below 34°C	LL speed
34°C ~ below 40°C	L speed
above 40°C	setting speed

◆ When compressor stops operating

The temperature of indoor heat exchanger	Indoor fan speed
above 20°C	UL speed
below 20°C	off
after 10 minutes when compressor stops operating	off

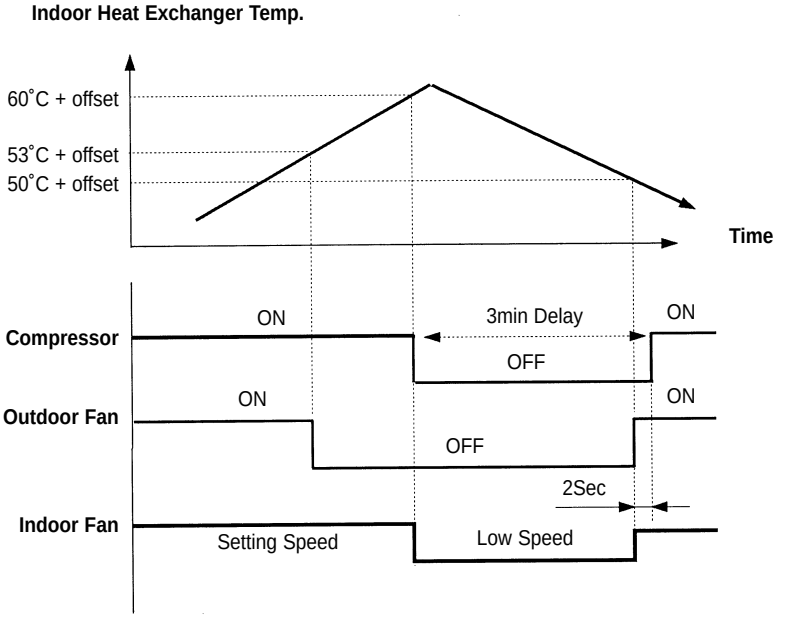


Details for Operation Property (Cont.)

6-2-11. Overload protection control

● **AT HEATING MODE**

- ◆ If indoor heat exchanger temp. is over 53°C, outdoor fan turns off.
- ◆ If indoor heat exchanger temp. is over 60°C, outdoor compressor stops and Indoor fan speed is low.
- ◆ After compressor and fan are off if indoor heat exchanger temp. is below 50°C, indoor fan and outdoor compressor and outdoor fan operate normally.



*offset = 0, 1, 2, 3˚C

Details for Operation Property (Cont.)

6-2-12. Low Temp Release

● **AT COOLING MODE**

◆ If the temperature of indoor heat exchanger is below -1°C for over 6minutes, the outdoor fan turns off.

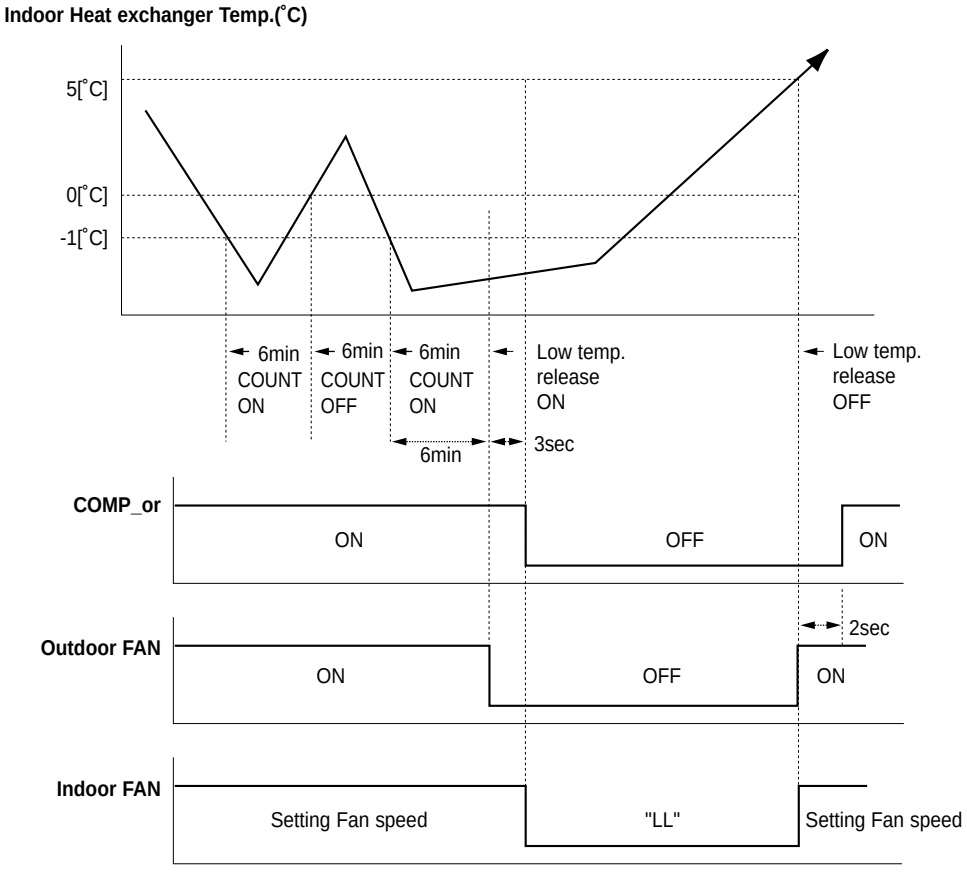
◆ If the temperature of indoor heat exchanger increase over 5°C during the first protection function, the first freezing protection function is released and the outdoor fan turns on.

◆ If the temperature of indoor heat exchanger increase over 0°C during 6 minutes counting, 6 minutes counter is cleared.

◆ If the temperature of indoor heat exchanger maintains for a minute at -4°C during the 6 minutes counting, switch off the compressor.

◆ If the compressor is off by Low Temp. Release, 5 minutes release is impossible.

◆ **Operating Pattern**



*LL = Low FAN speed – 35rpm

Details for Operation Property (Cont.)

6-2-13. Defrost control

Defrost operation is controlled by sensing the temperature of indoor heat exchanger.

◆ How to sense defrost conditions
A condition

The temperature of indoor heat exchanger is checked in intervals of 1 minute. In case the temperature of indoor heat exchanger drops more than 0.5°C for 6 minutes, it is considered as one cycle. If it happens 3 times continuously, It is said that " A condition" is satisfied.

B condition

If the temperature of indoor heat exchanger is below about 40±3°C when the compressor is on, it is considered as defrost "B condition"

C condition

When the accumulating time of compressor ON is over 20 minutes.

D condition

When the accumulating time of compressor ON is over 3Hr.

E condition

When operating time of compressor without stopping is over 6 minutes.

F condition

If the compressor is off(thermo off) when the temperature of indoor heat exchanger is below about 46°C, it is considered as one cycle.
If it happens 2 times continuously, It is said that "F condition" is satisfied.

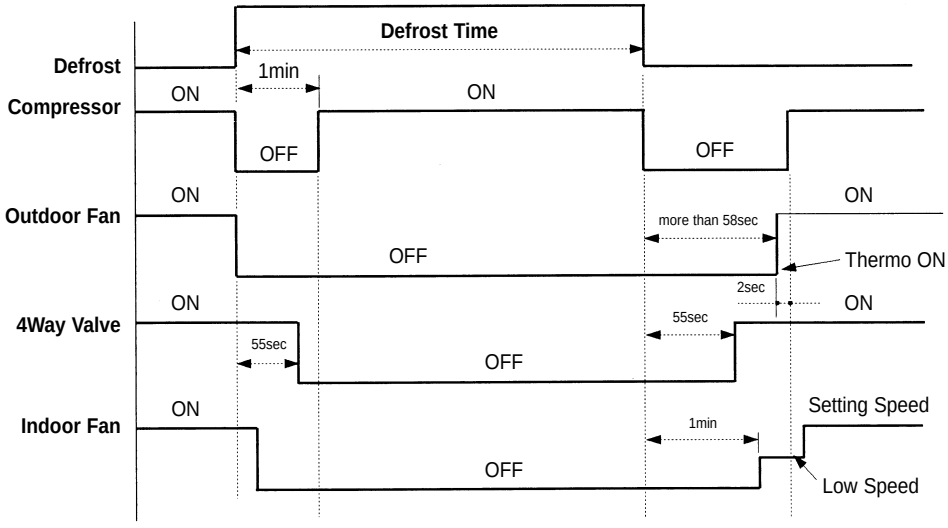
G condition

When the accumulating time of compressor ON is over 90 minutes.

◆ Defrost operation conditions
A*X*B*X*C *condition or*
B*X*D*X*E *condition*
F*X*G *condition*
Defrost time : 5~8 minutes

Details for Operation Property (Cont.)

◆ **Operation pattern**



Operating Recommendations

6-3. Operating Recommendations

● **Here are a few recommendations that you should follow when using your air conditioner.**

Topic	Recommendation
Heating performances	The heat pump absorbs heat from outside air and brings it indoors. If the temperature of the outside air drops, the air conditioner will heat less. If you find that the room is not warm enough, use an additional heating appliance.
Warm air circulation	The air conditioner circulates warm air to heat your room; as a result, some time will be required after starting the air conditioner to warm the entire room. If necessary, set the air conditioner going a short time before you wish to use the room.
Frost	When outside temperatures are low and humidity is high, frost may form in the outdoor unit when heating with your air conditioner. If this happens: ◆ The heating operation is stopped. ◆ The Deice mode is triggered automatically for about seven minutes ◆ The OPERATION indicator on the indoor unit lights up red. No intervention is required from you; after about seven minutes, the air conditioner starts operating again normally.
High indoor and outdoor temperatures	If both the indoor and outdoor temperatures are high and you select the the Heat mode, the outdoor unit's fan and compressor may stop. This is normal; simply wait until the air conditioner switches on again.
Power failure	If a power failure occurs when the air conditioner is operating, the unit is switched off. When the power returns, you must press ⏻ to restart it.

Temperature and Humidity Ranges

6-4. Temperature and Humidity Ranges

● **The following table indicates the temperature and humidity ranges within which the air conditioner can be used.**

If the air conditioner is used at...	Then...
High temperatures	The automatic protection feature may be triggered and the air conditioner stopped.
Low temperatures	A water leakage or some other malfunction may happen if the heat exchanger freezes.
High humidity levels	Water may condense on and drip from the surface of the indoor unit if it is used for long periods.

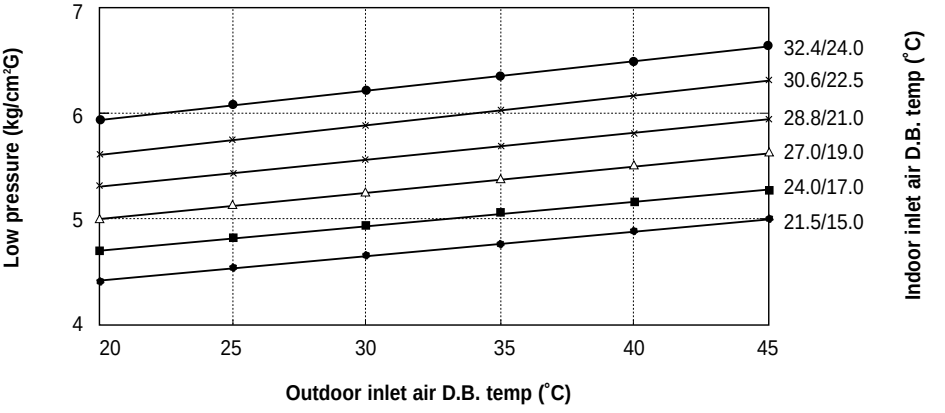
Mode	Outdoor Temperature	Indoor Temperature	Indoor Humidity
Heating	0°C to 24°C approx.	27°C or less	-
Cooling	21°C to 43°C approx	18°C to 32°C approx.	80% or less
Drying	18°C to 43°C approx.	18°C to 32°C approx.	-

✵ **If the heating operation is used at below 0°C(outdoor temperature) then, does not have a full capacity.**
If the cooling operation is used at over 33°C(indoor temperature) then, does not have a full capacity.

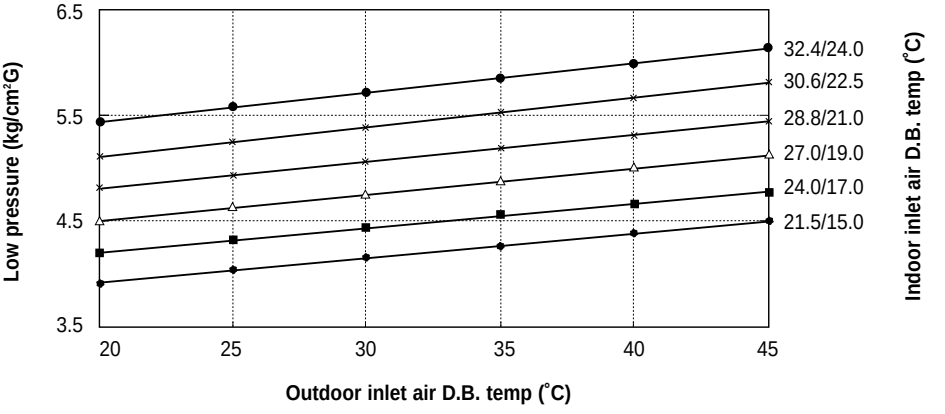
Pressure Graph

6-5. Pressure Graph

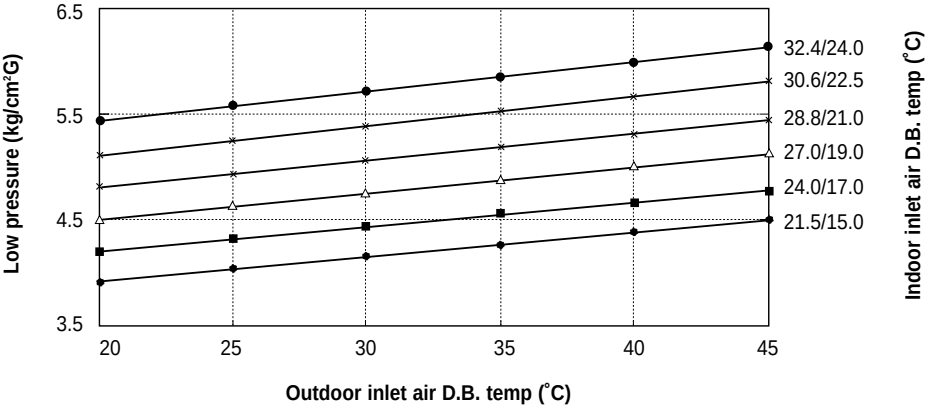
❑ 7K BTU



❑ 9K BTU



❑ 12K BTU





Diagram

7-1. Refrigerating Cycle Block Diagram

7-2. Circuit Diagram

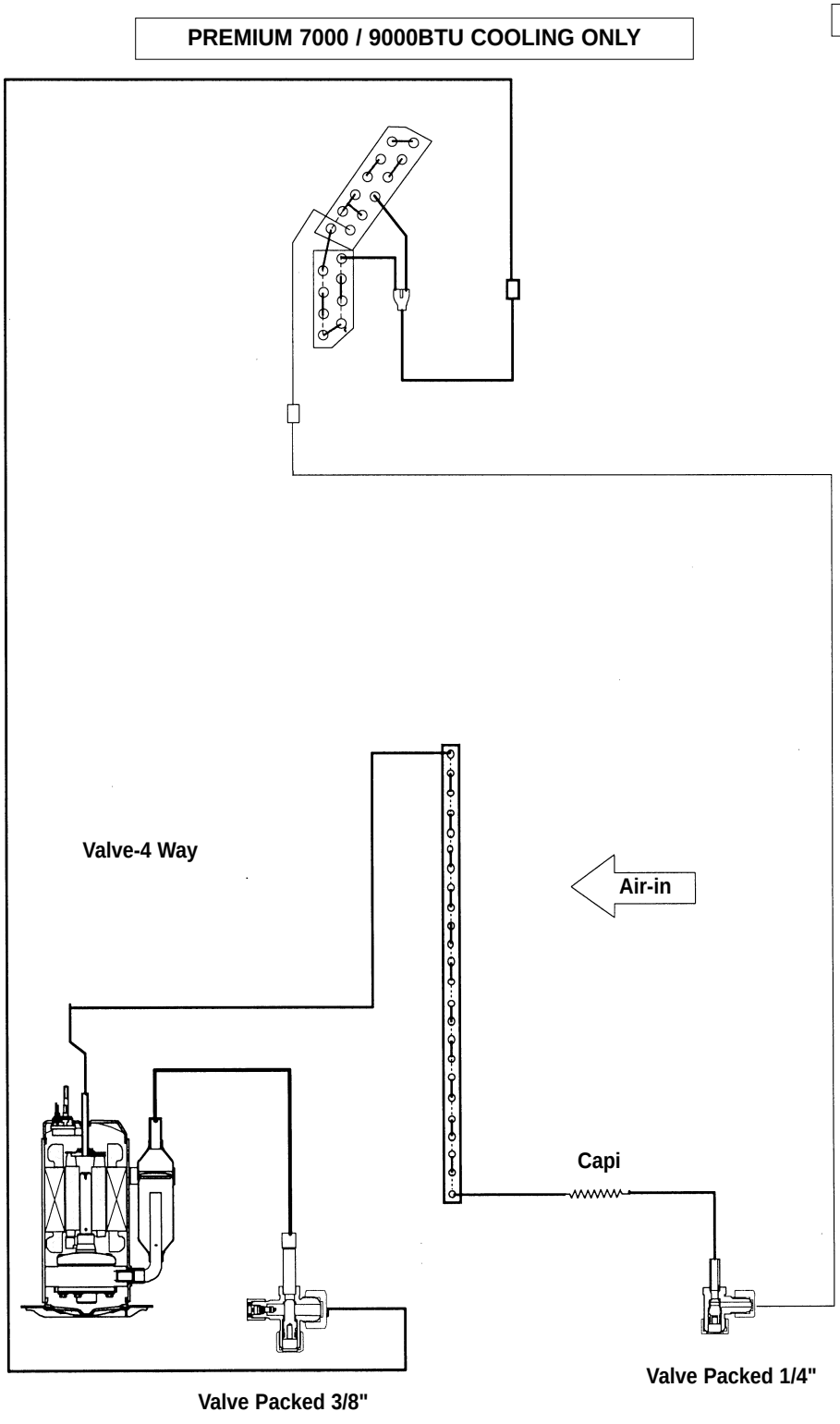
Refrigerating Cycle Block Diagram

7-1. Refrigerating Cycle Block Diagram

7-1-1. Cooling Only

❑ 7K / 9K

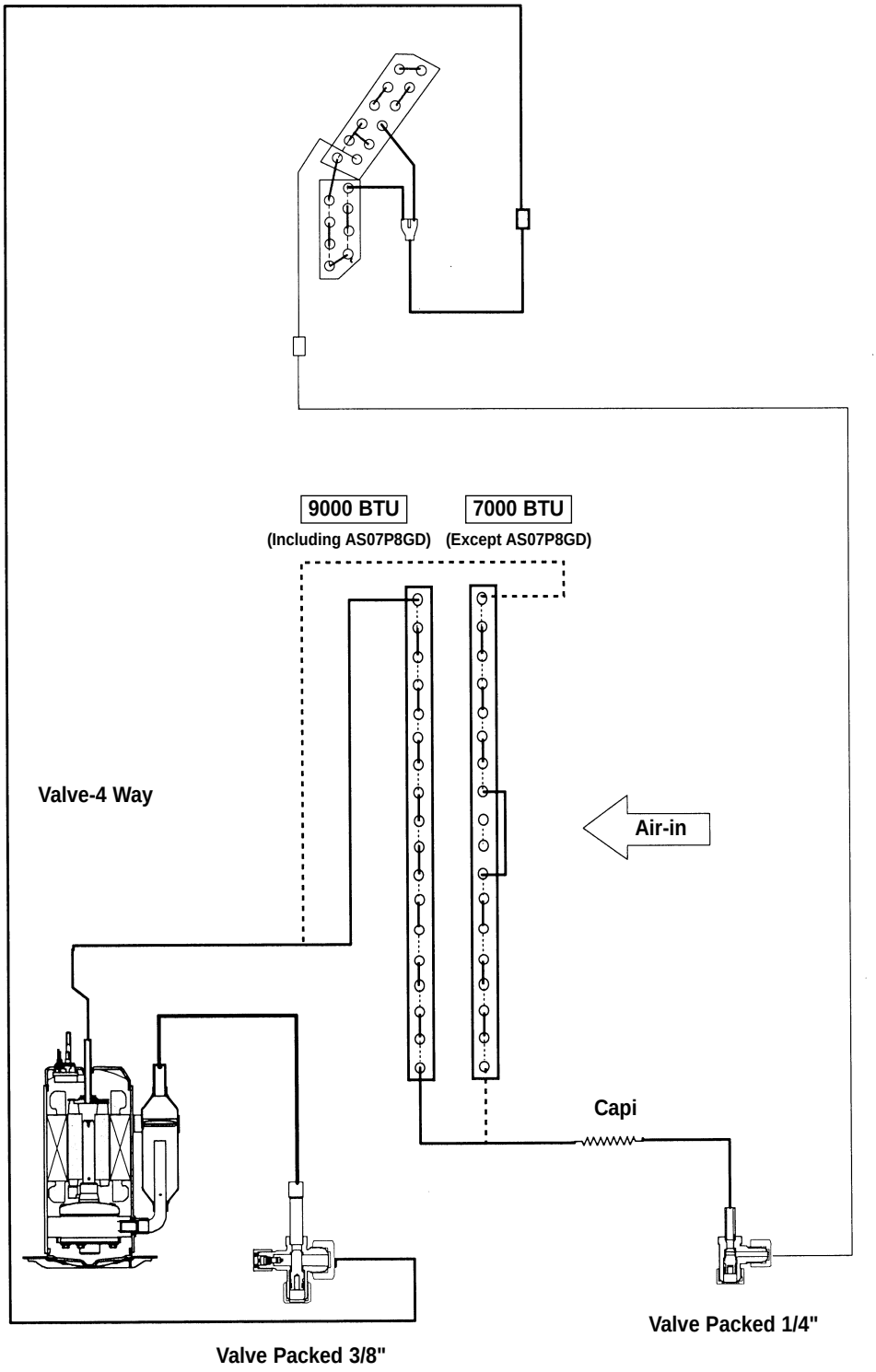
(A Series)



Refrigerating Cycle Block Diagram (Cont.)

PREMIUM 7000 / 9000BTU COOLING ONLY

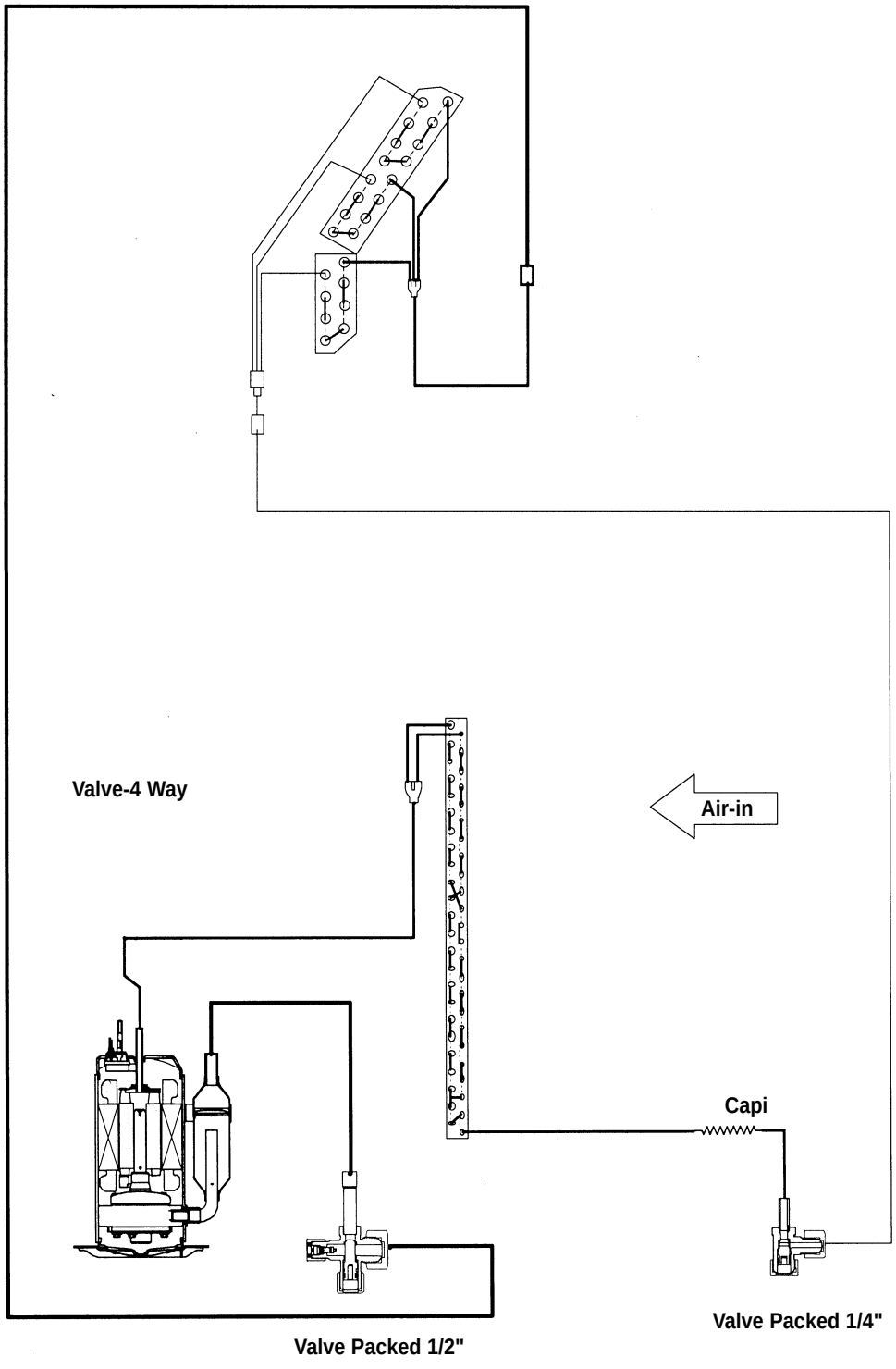
(B Series)



Refrigerating Cycle Block Diagram (Cont.)

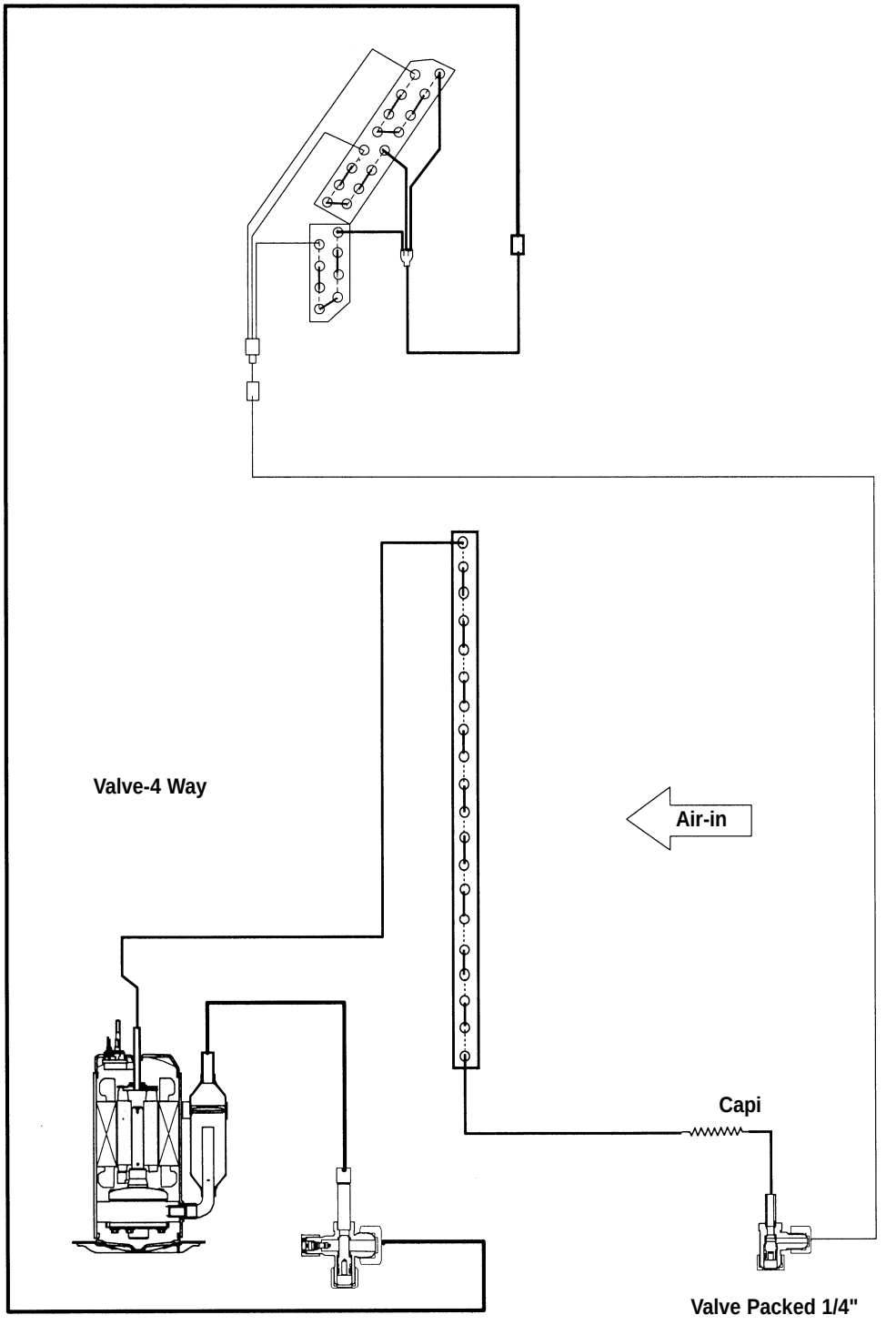
❑ 12K

PREMIUM 12000BTU COOLING ONLY (A Series)



Refrigerating Cycle Block Diagram (Cont.)

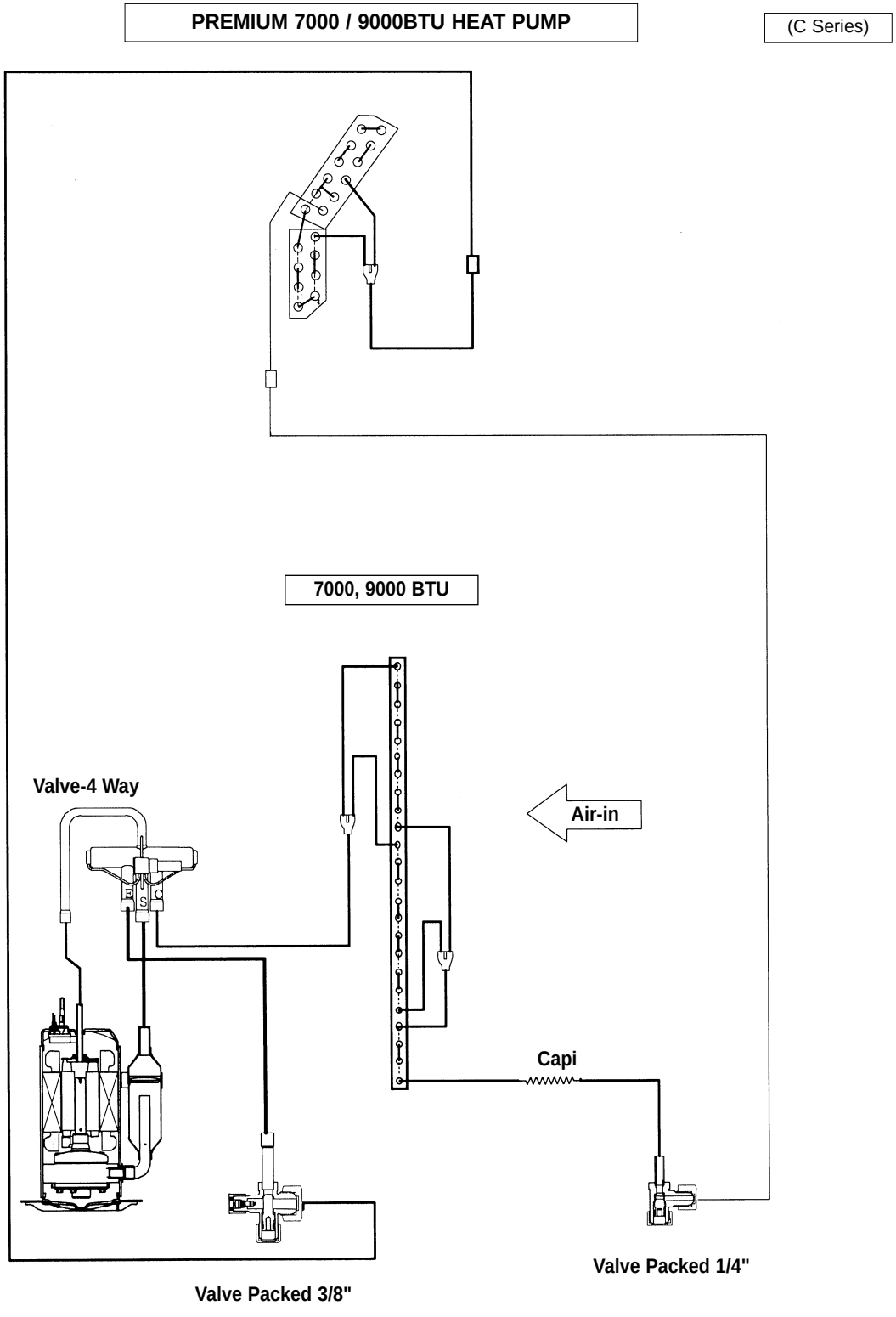
PREMIUM 12000BTU COOLING ONLY (B Series)



Refrigerating Cycle Block Diagram (Cont.)

7-1-2. Heat Pump

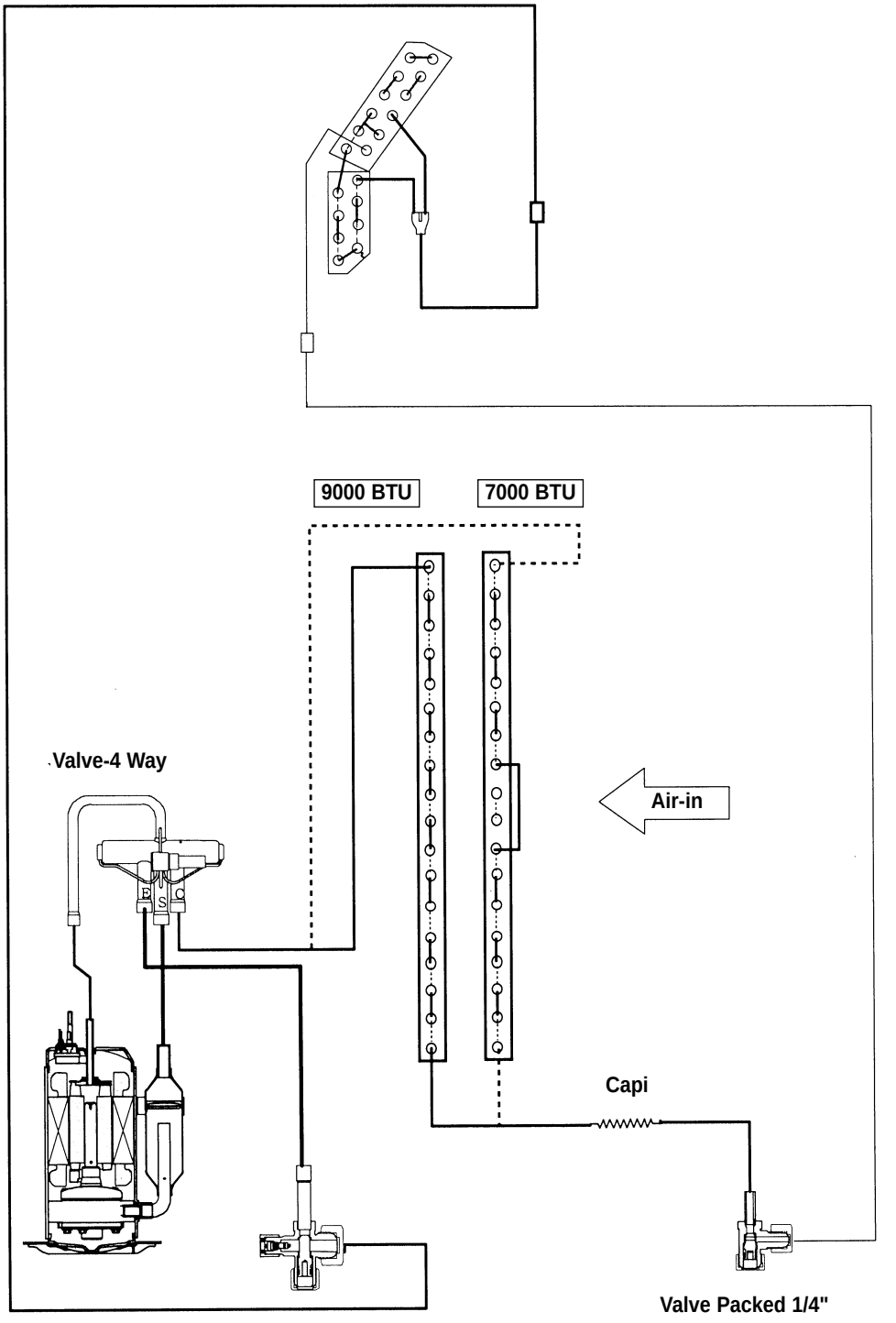
❑ 7K / 9K



Refrigerating Cycle Block Diagram (Cont.)

PREMIUM 7000 / 9000BTU HEAT PUMP
(Except SH07ZPG(A) and SH09ZPG(A))

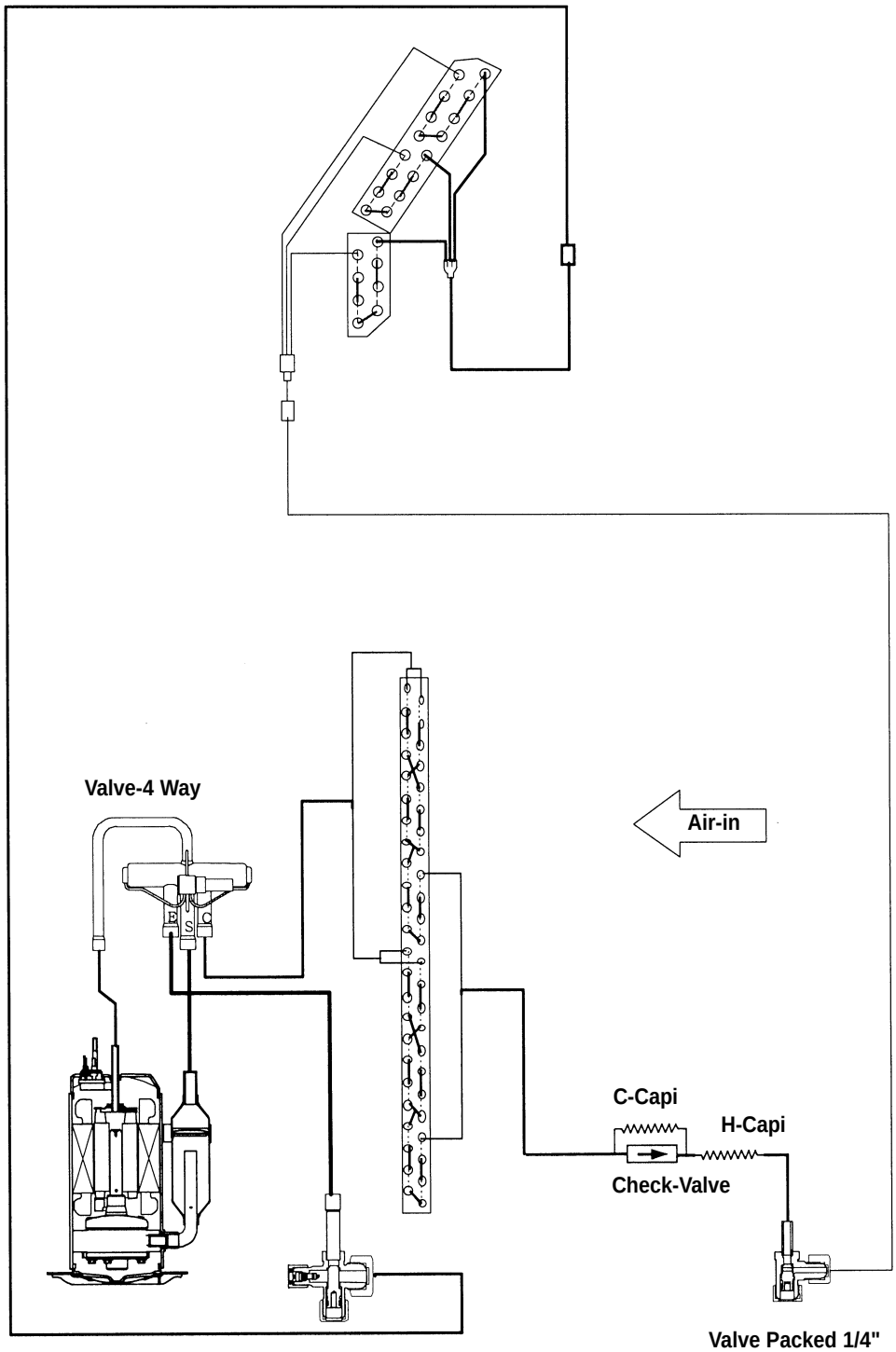
(D Series)



Refrigerating Cycle Block Diagram (Cont.)

❑ 12K

PREMIUM 12000BTU HEAT PUMP (C Series)

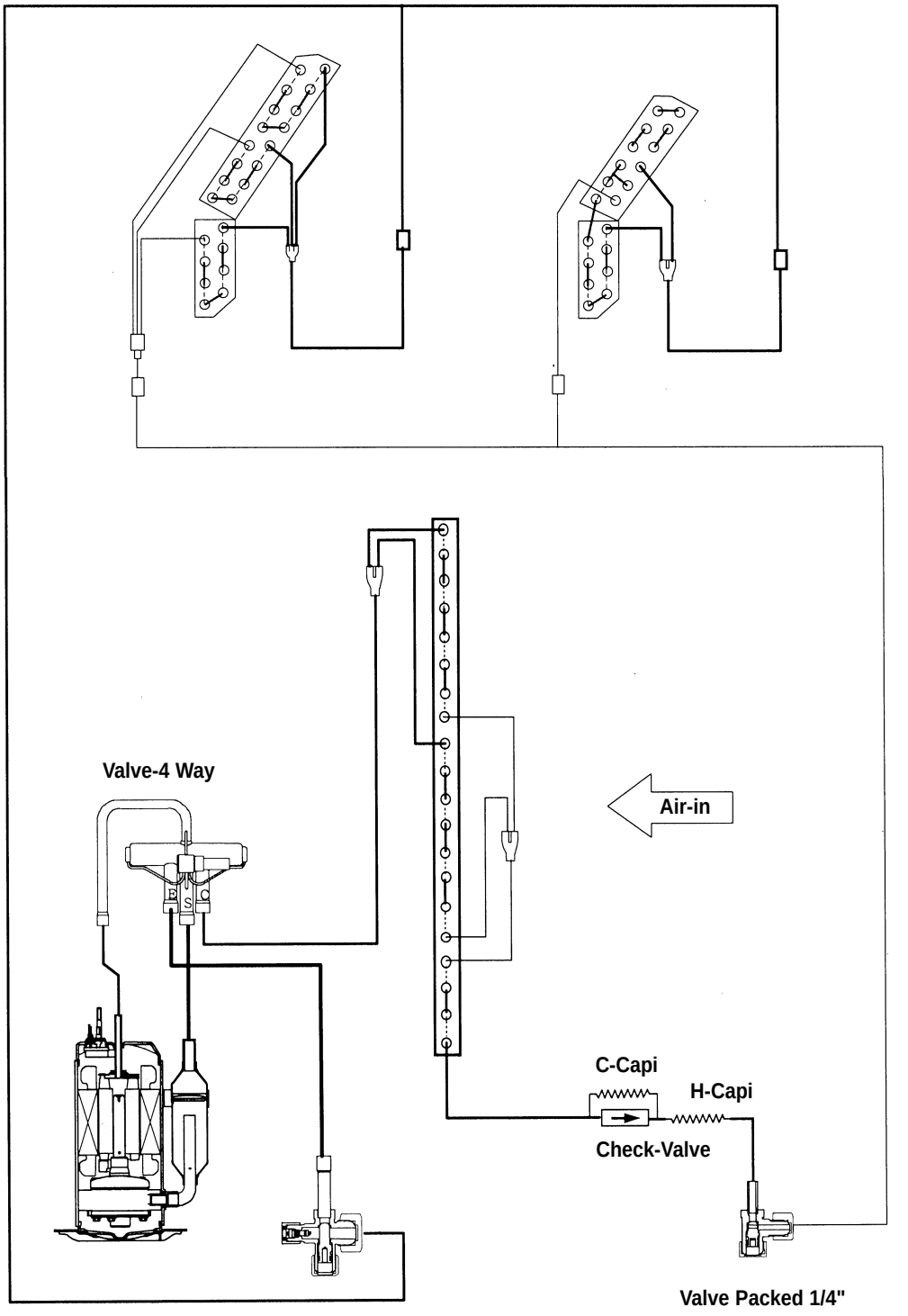


Refrigerating Cycle Block Diagram (Cont.)

PREMIUM 12000BTU HEAT PUMP
(Except SH12ZPG(A))

PREMIUM 7000/9000BTU HEAT PUMP
(Only SH09ZPG(A) and SH07ZPG(A))

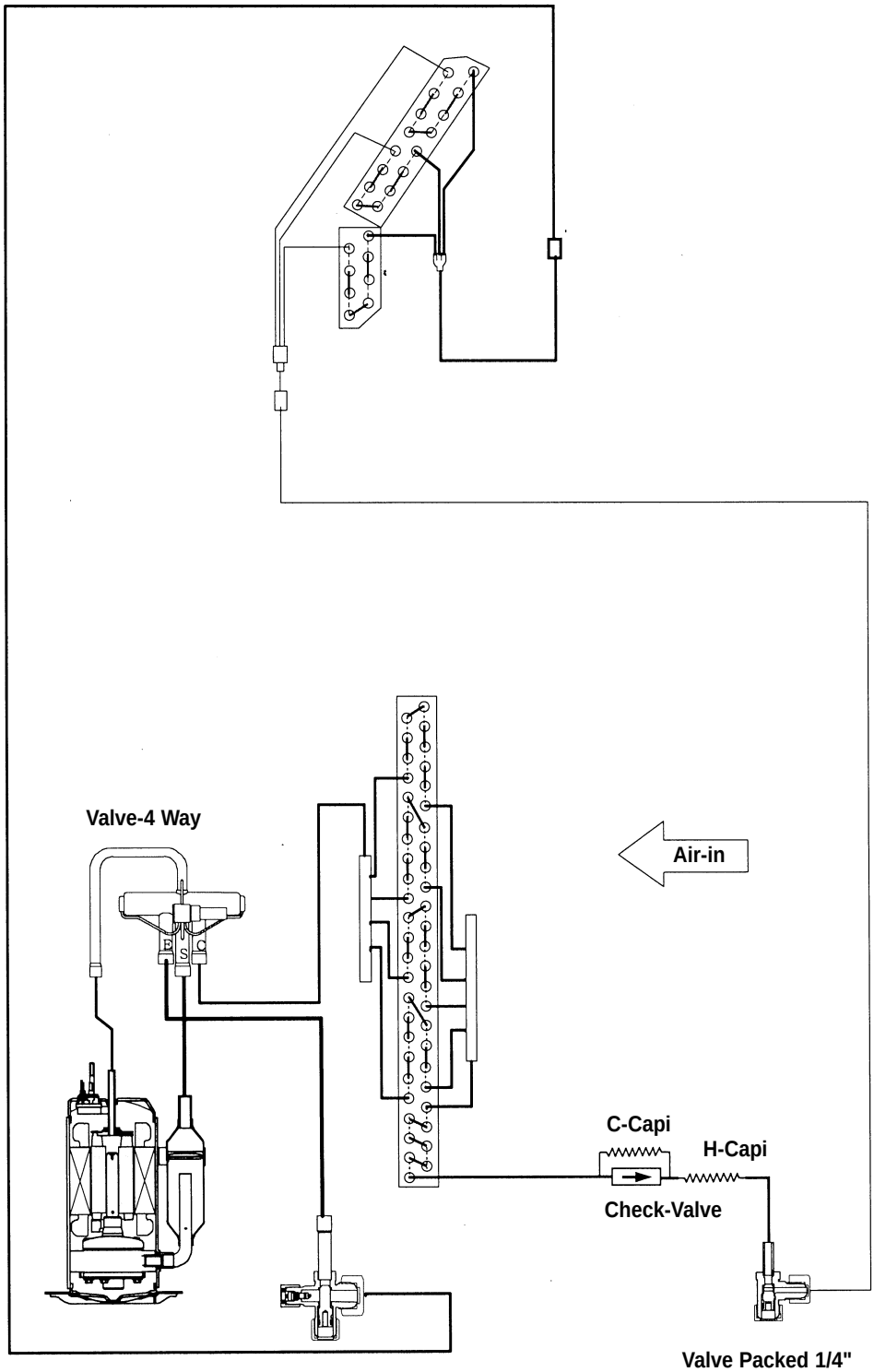
(D Series)



Refrigerating Cycle Block Diagram (Cont.)

PREMIUM 12000BTU HEAT PUMP
(Only SH12ZPG(A))

(D Series)

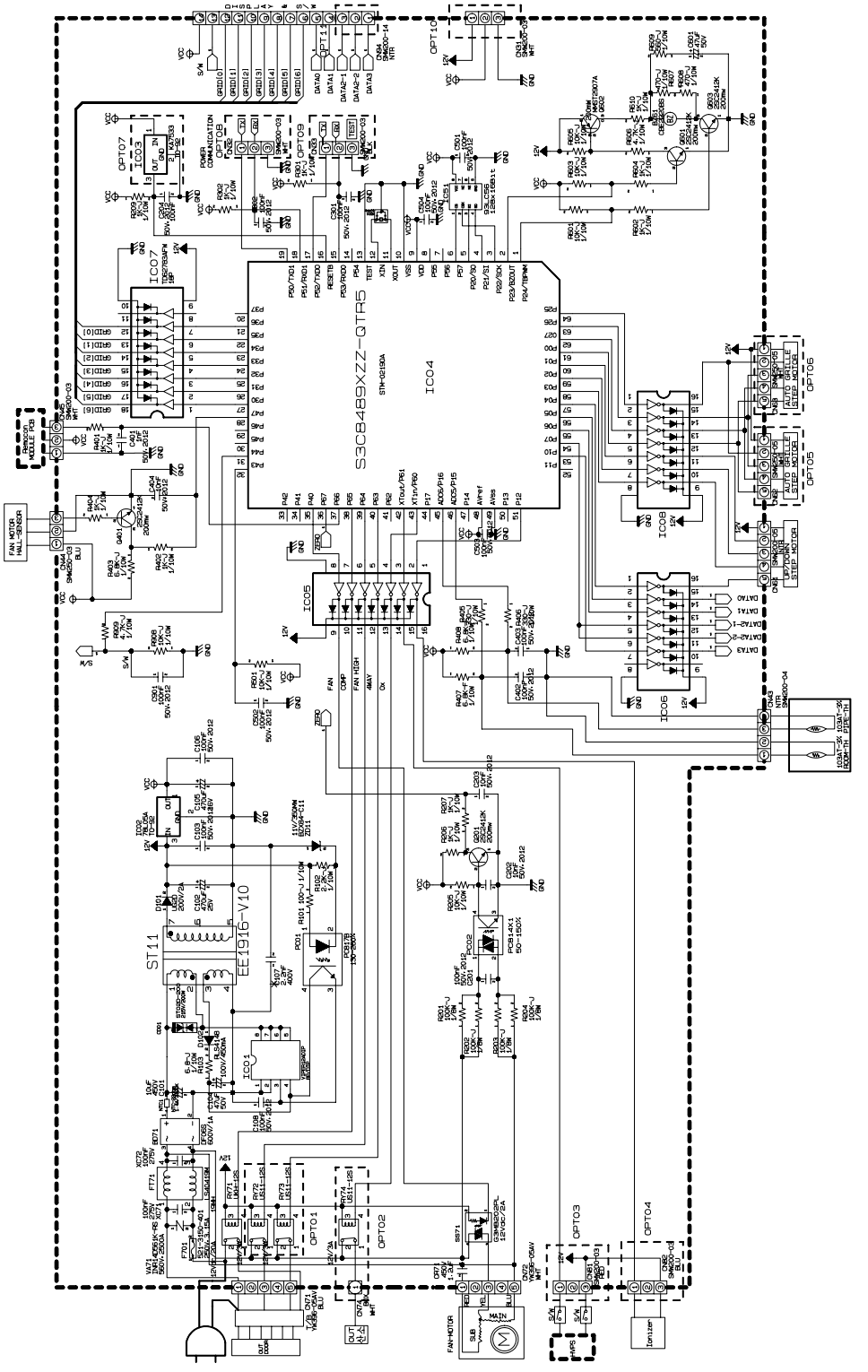


Circuit Diagram

7-2. Circuit Diagram

7-2-1. 7K / 9K

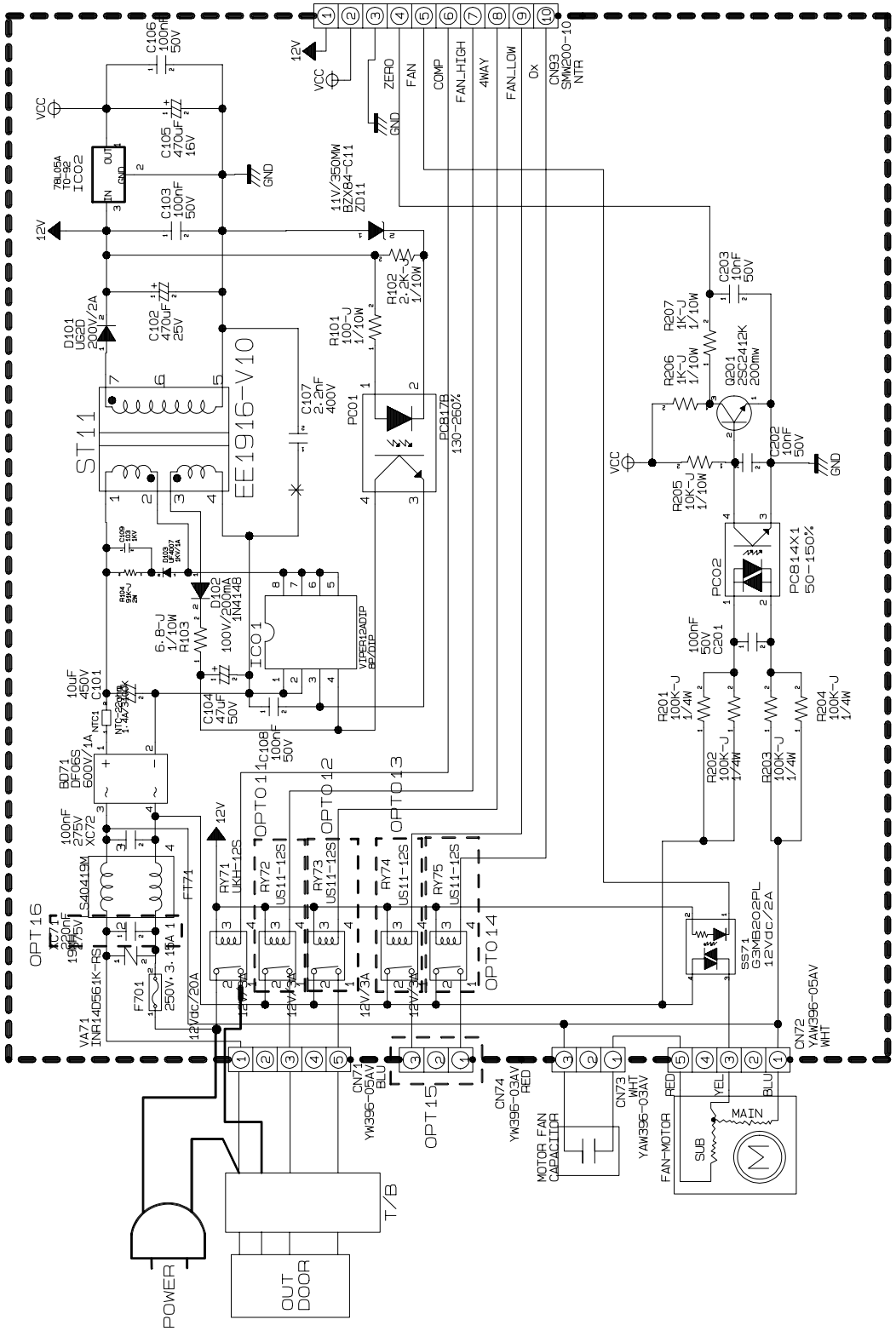
- **Indoor Unit**



Circuit Diagram (Cont.)

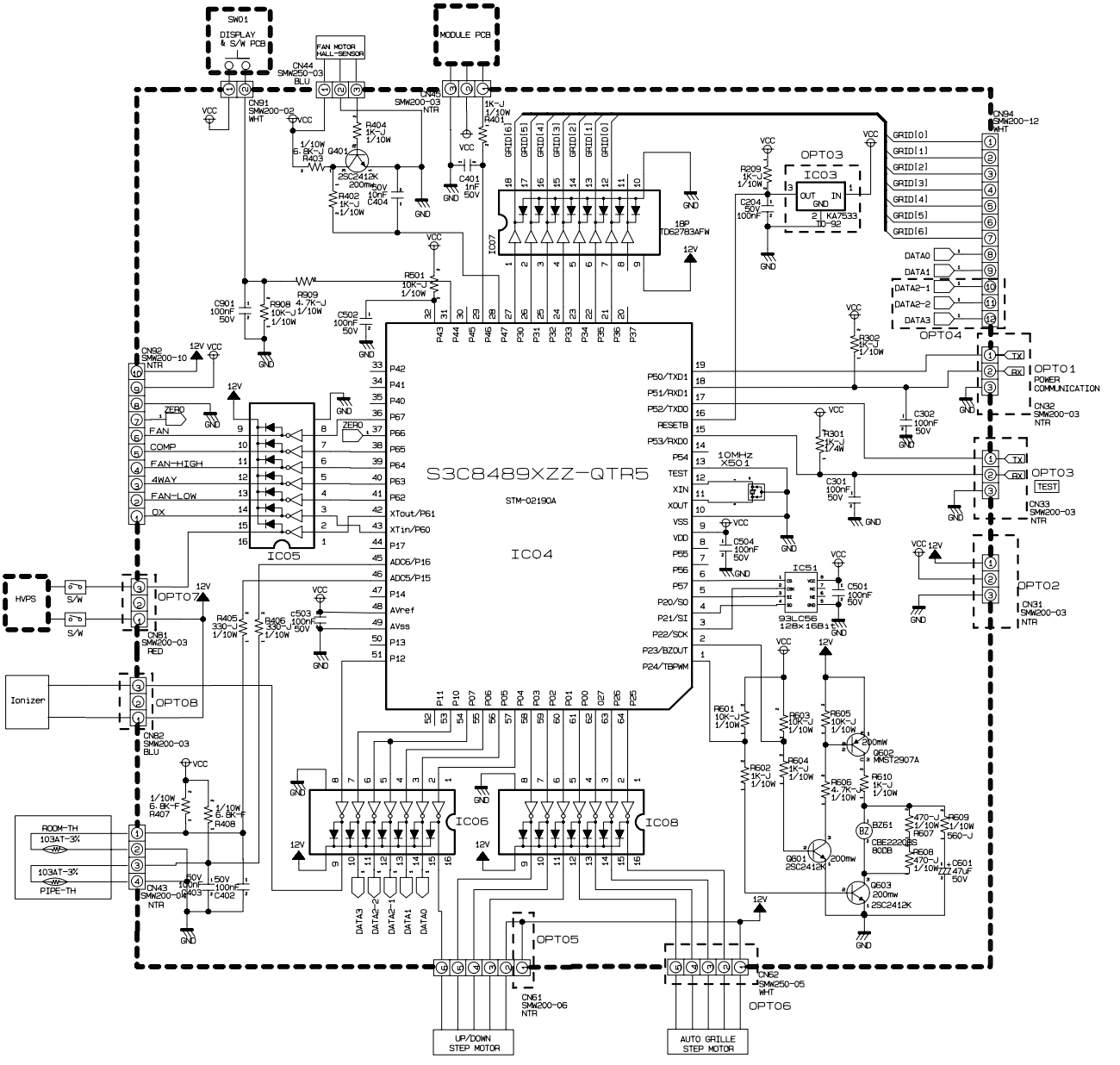
7-2-2. 12K

- **Indoor Unit(AC-PART)**



Circuit Diagram (Cont.)

● Indoor Unit(DC-PART)



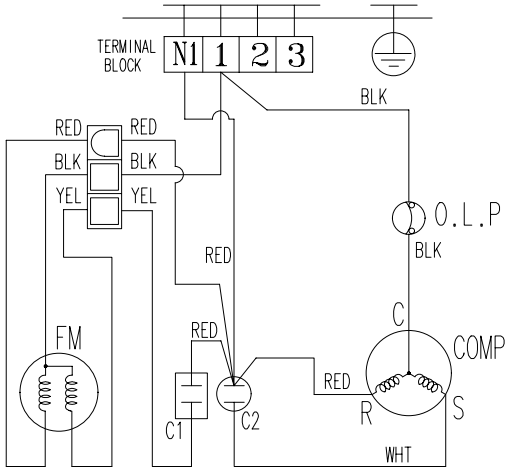
Circuit Diagram (Cont.)

● **OUTDOOR UNIT**

❑ **7K / 9K / 12K(Cooling only model)**

(A series)

DIAGRAM-OUTDOOR

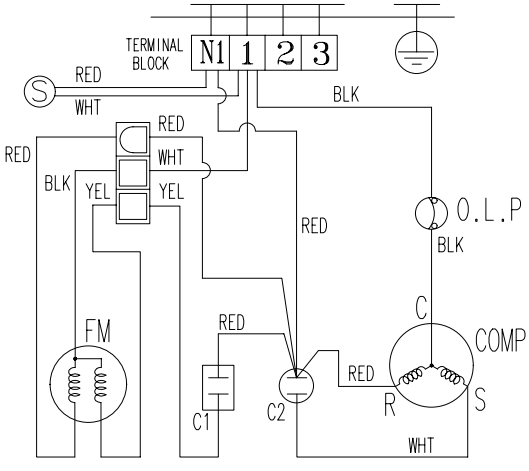


C1 : MOTOR CAPACITOR
C2 : COMP CAPACITOR

Code No : DB68-01625A

(B series)

DIAGRAM-OUTDOOR



C1 : MOTOR CAPACITOR FM : FAN MOTOR S : SPARK KILLER
C2 : COMP CAPACITOR O.L.P : OVER LOAD PROTECTOR

Code No : DB98-09522A

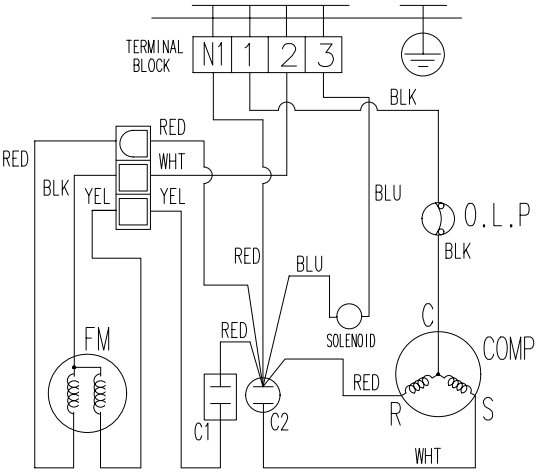
Circuit Diagram (Cont.)

● OUTDOOR UNIT

❑ 7K / 9K / 12K(Heat pump model)

(C series)

DIAGRAM-OUTDOOR



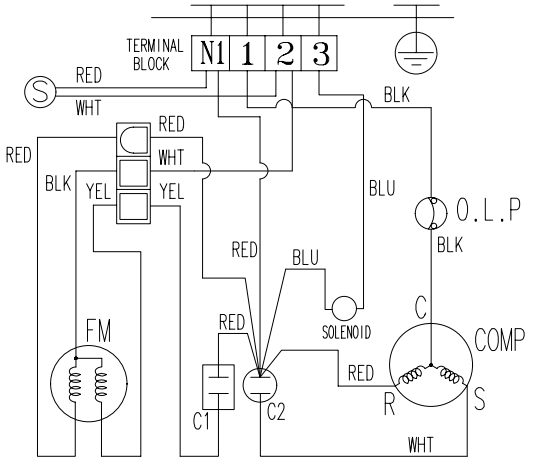
C1 : MOTOR CAPACITOR FM : FAN MOTOR

C2 : COMP CAPACITOR O.L.P : OVER LOAD PROTECTOR

Code No : DB98-11762A

(D series)

DIAGRAM-OUTDOOR



C1 : MOTOR CAPACITOR FM : FAN MOTOR S : SPARK KILLER

C2 : COMP CAPACITOR O.L.P : OVER LOAD PROTECTOR

Code No : DB68-02773A



Troubleshooting

8-1. Troubleshooting for Non Inverter Cooling Only (7K/9K)

8-2. Troubleshooting for Non Inverter Heat Pump (7K/9K)

8-3. Troubleshooting for Non Inverter Cooling Only (12K)

8-4. Troubleshooting for Non Inverter Heat Pump (12K)

8-5. Set up the Model Option

Troubleshooting for Non Inverter Cooling Only (7K/9K)

8-1. Troubleshooting for Non Inverter Coolin Only (7K/9K)

8-1-1. Items to be checked first

1) The input voltage should be rating voltage ±10% range.
The airconditioner may not operate properly if the voltage is out of this range.

2) Is the link cable linking the indoor unit and the outdoor unit linked properly?
The indoor unit and the outdoor unit shall be linked by 3 cables.
Check the terminals if the indoor unit and outdoor unit are properly linked by the same number of cables.
Otherwise the airconditioner may not operate properly.

3) When a problem occurs due to the contents illustrated in the table below it is a symptom not related to the malfunction of the airconditioner.

NO	Operation of air conditioner	Explanation
1	The OPERATION indication LED(≋) blinks when a power plug of the indoor unit is plugged in for the first time.	It indicates power is on. The LED stops blinking if the operation ON/OFF button on the remote control unit is pushed.
2	In a COOL operation mode, the compressor does not operate at a room temperature higher than the setting temperature that the IN DOOR FAN should operate.	In happens after a delay of 3 minutes when the compressor is reoperated. The same phenomenon occurs when a power is on. As a phenomenon that the compressor is reoperated after a delay of 3 minutes, the indoor fan is adjusted automatically with reference to a temperature of the air blew
3	Fan speed setting is not allowed in AUTO or DRY mode. (Auto)	The speed of the indoor fan is set to LL in DRY mode. Fan speed is selected automatically in AUTO mode.
4	Compressor stops operation intermittently in DRY mode.	Compressor operation is controlled automatically in DRY mode depending on the room temperature and humidity.
5	Timer LED of the indoor unit lights up and the air conditioner does not operate.	Timer is being activated and the unit is in ready mode. The unit operates normally if the timer operation is cancelled.
6	The compressor stops intermittently in a COOL mode or DRY mode, and fan speed of the indoor unit decreases.	The compressor stops intermittently or the fan speed of the indoor unit decreases to prevent inside/outside air frozen depending on the inside/outside air temperature.

4) Indoor unit observes operation condition of the air conditioner, and displays self diagnosis details on the display panel.

Error Mode	DISPLAY 7-SEGMENT		Remark
	Operation Off	Operation On	
Indoor unit room temperature sensor error (open or short)	OFF	E1	
Indoor unit heat exchanger temperature sensor error(open or short)	OFF	E2	
Indoor FAN MOTOR error : Keep the RPM value 450 below for 15 seconds	OFF	E3	
EEPROM error	OFF	E6	
Error in option In case of No option set-up In case of option data error	All lamp blinking	All lamp blinking	

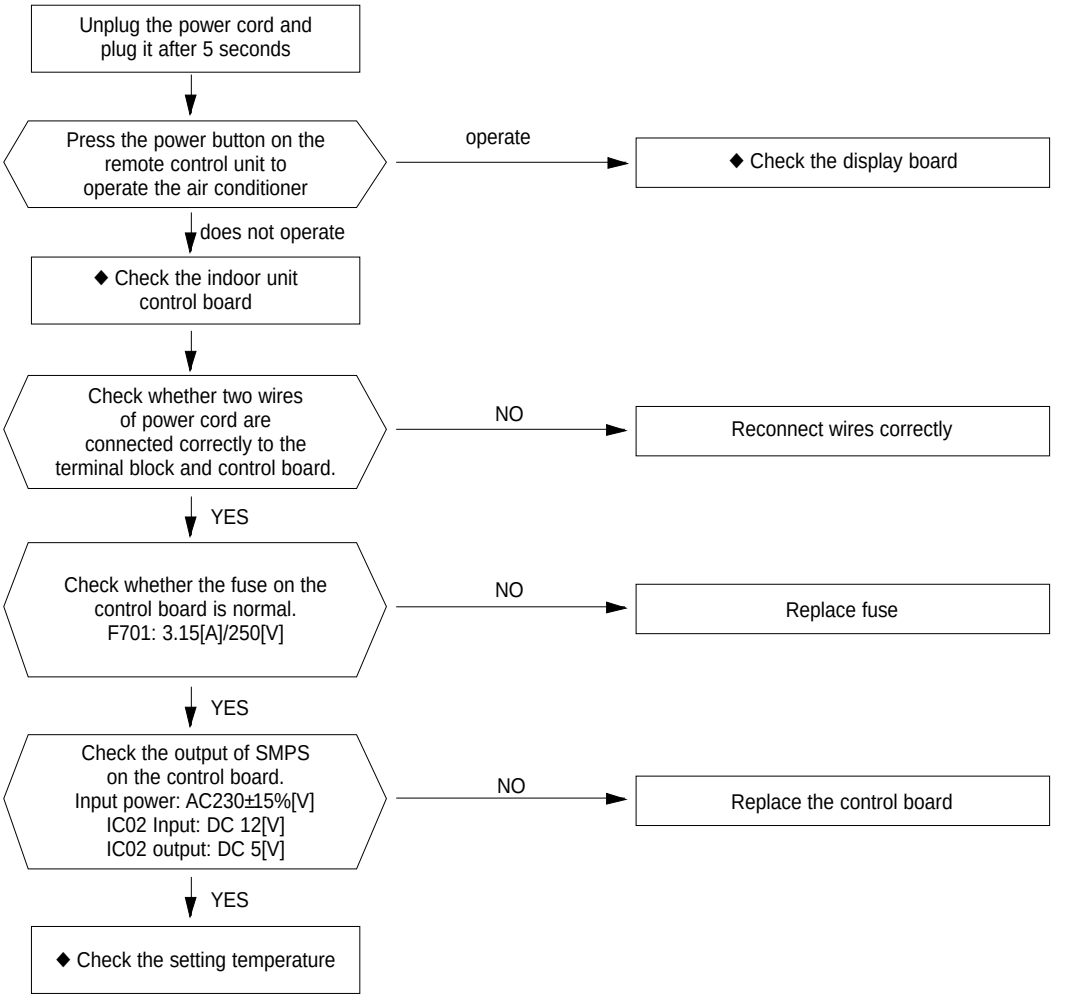
Troubleshooting for Non Inverter Cooling Only (7K/9K) (Cont.)

8-1-2. Fault Diagnosis by Symptom

◆ **No Power (completely dead)-Initial diagnosis**

1) Checklist :
   (1) Is input voltage normal?
   (2) Is AC power linked correctly?
   (3) Is input voltage of DC regulator IC KA7805 (IC02) normal? (11VDC-12.5VDC)
   (4) Is output voltage of DC regulator IC KA7805 (IC02) normal? (4.5VDC-5.5VDC)

2) Troubleshooting procedure

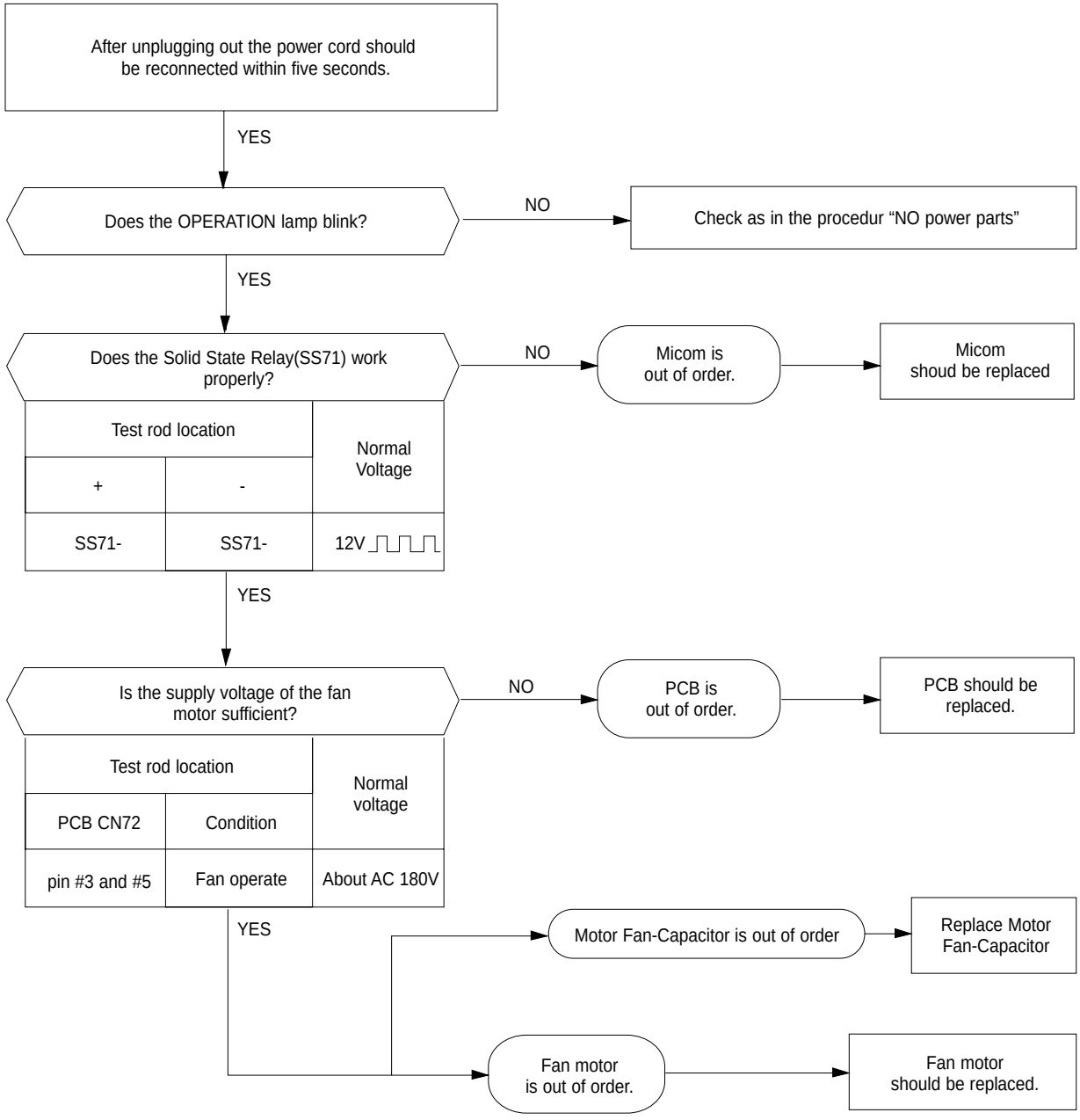


Troubleshooting for Non Inverter Cooling Only (7K/9K) (Cont.)

◆ **When the Indoor Unit Fan Does Not Operate. (Initial Diagnosis)**

1) Checklist :
   (1) Is the indoor unit fan motor properly connected with the connector (CN72)?
   (2) Is the AC voltage correct?
   (3) Is HALL IC in indoor fan motor properly connected with the connector (CN44)?
   (4) Is the running capacitor (CR71) properly connected with PCB board?

2) Troubleshooting procedure

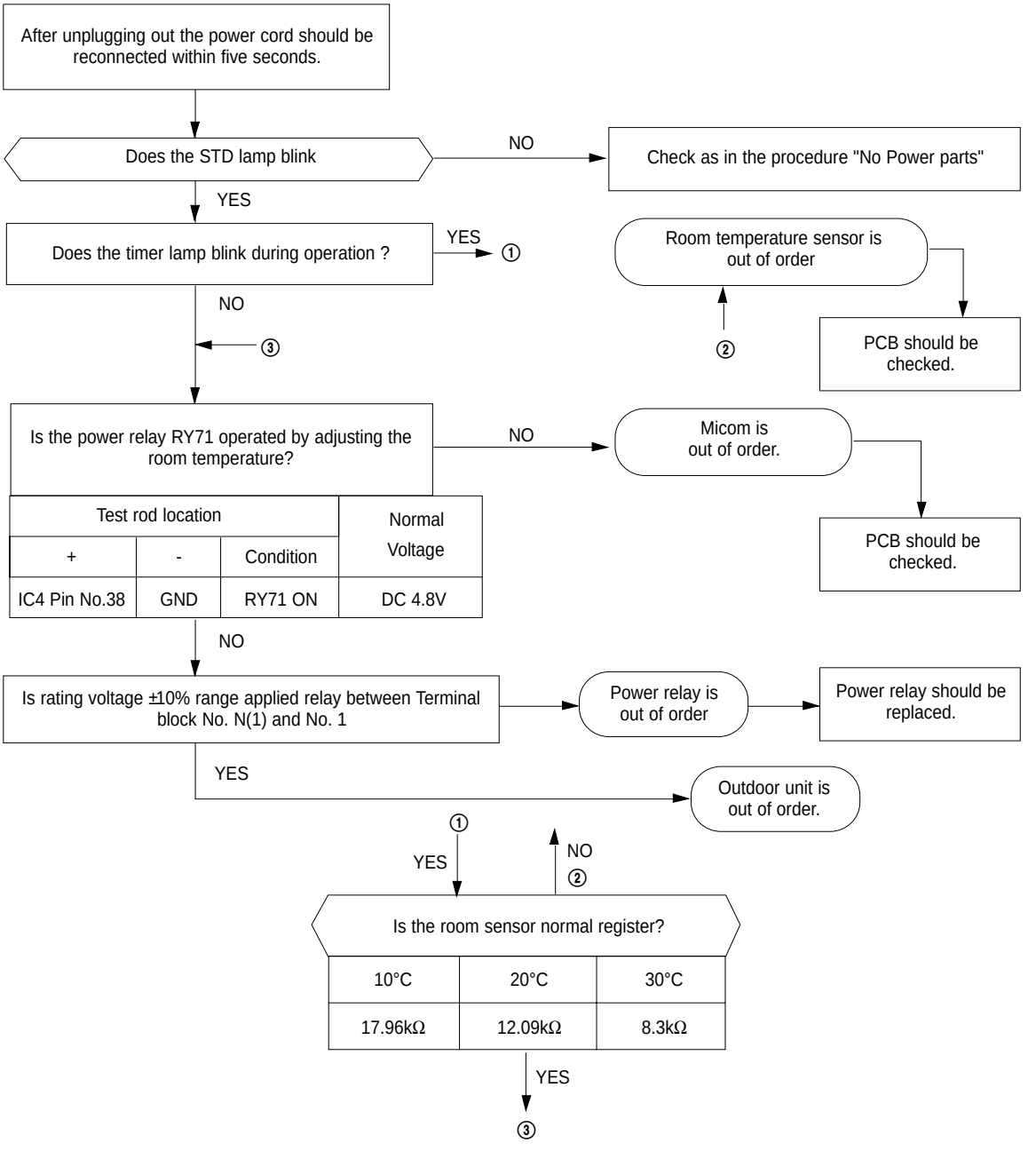


Troubleshooting for Non Inverter Cooling Only (7K/9K) (Cont.)

◆ **When the Outdoor Unit Does Not Operate. (Initial Diagnosis)**

1) Checklist :
   (1) Is input voltage normal?
   (2) Is the set temperature of the remote control higher than room temperature in COOL mode?
   (3) Is the POWER IN connector (CN71) linked correctly?
   (4) Is the outdoor unit properly connected with the TERMINAL BLOCK connector(N(1), 1)?

2) Troubleshooting procedure

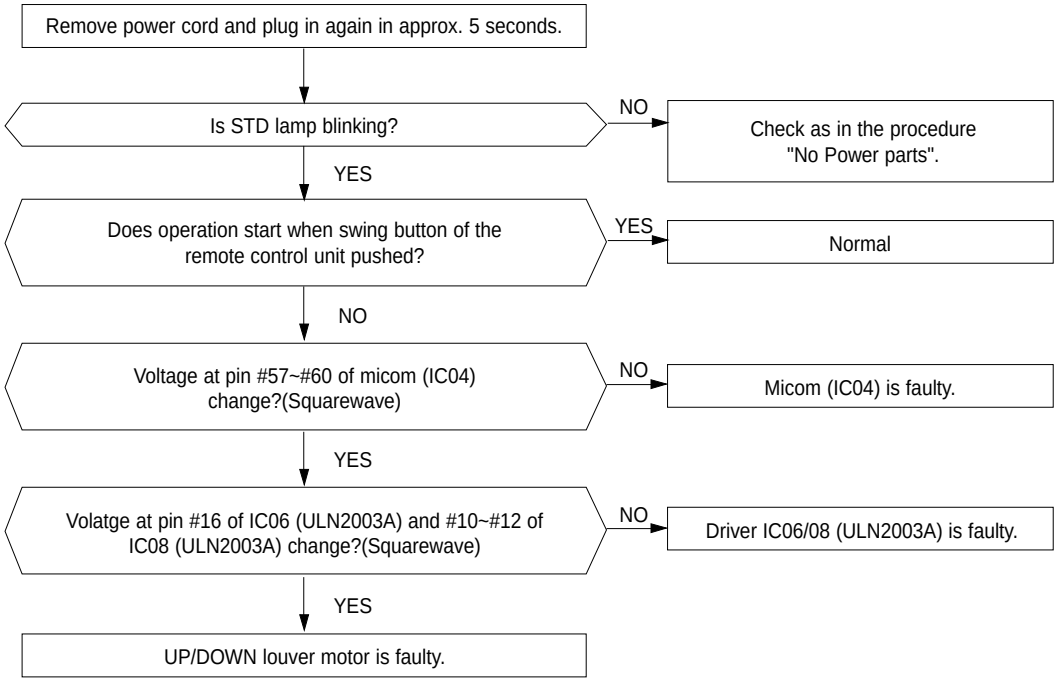


Troubleshooting for Non Inverter Cooling Only (7K/9K) (Cont.)

◆ **When the UP/DOWN Louver Moter Does Not Operate. (Initial Diagnosis)**

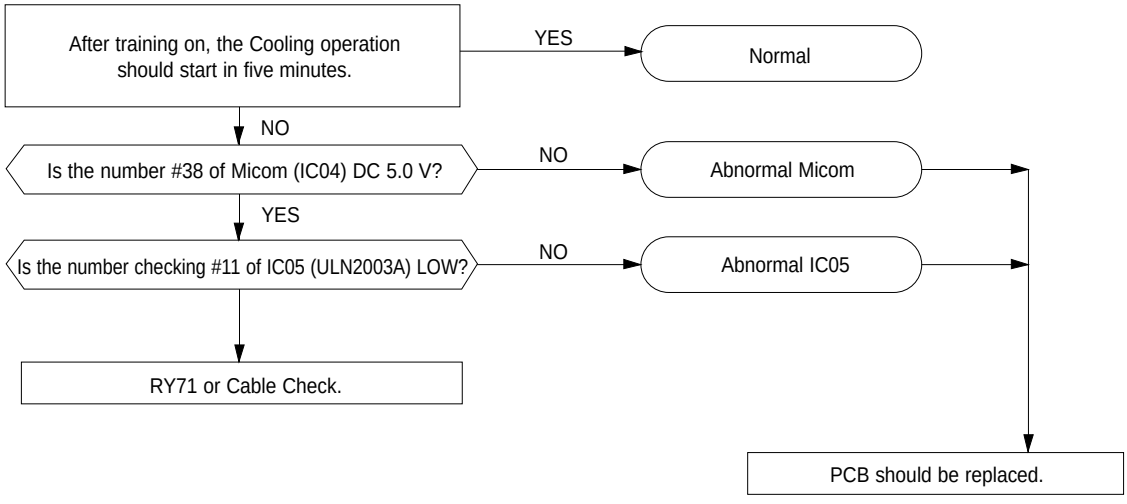
1) Checklist :
   (1) Is input voltage normal?
   (2) Is the UP/DOWN louver motor properly connected with the connector (CN61)?

2) Troubleshooting procedure



◆ **In the mode, When there is no cool air current. Check this first;**

(1) Is the set temperature of Remote Control lower than room temperature in Cool mode?
(2) Is the Indoor PCB properly connected with the CN71 connector?



8-2. Troubleshooting for Non Inverter Heat Pump (7K/9K)

8-2-1. Items to be checked first

1) The input voltage should be rating voltage ±10% range.
The airconditioner may not operate properly if the voltage is out of this range.

2) Is the link cable linking the indoor unit and the outdoor unit linked properly?
The indoor unit and the outdoor unit shall be linked by 5 cables.
Check the terminals if the indoor unit and outdoor unit are properly linked by the same number of cables.
Otherwise the airconditioner may not operate properly.

3) When a problem occurs due to the contents illustrated in the table below it is a symptom not related to the malfunction of the airconditioner.

NO	Operation of air conditioner	Explanation
1	The OPERATION indication LED(≋) blinks when a power plug of the indoor unit is plugged in for the first time.	It indicates power is on. The LED stops blinking if the operation ON/OFF button on the remote control unit is pushed.
2	In a COOL operation mode, the compressor does not operate at a room temperature higher than the setting temperature that the IN DOOR FAN should operate. In a HEAT operation mode, the compressor does not operate at a room temperature lower than the setting temperature that indoor fan should operate.	In happens after a delay of 3 minutes when the compressor is reoperated. The same phenomenon occurs when a power is on. As a phenomenon that the compressor is reoperated after a delay of 3 minutes, the indoor fan is adjusted automatically with reference to a temperature of the air blew
3	Fan speed setting is not allowed in AUTO(Auto) or DRY( ) mode.	The speed of the indoor fan is set to LL in DRY mode. Fan speed is selected automatically in AUTO mode.
4	Compressor stops operation intermittently in DRY( ) mode.	Compressor operation is controlled automatically in DRY mode depending on the room temperature and humidity.
5	Compressor of the outdoor unit is operating although it is turned off in a HEAT mode.	When the unit is turned off while de-ice is activated, the compressor continues operation for up to 9 minutes (maximum) until the deice is completed.
6	Timer LED of the indoor unit lights up and the air conditioner does not operate.	Timer is being activated and the unit is in ready mode. The unit operates normally if the timer operation is cancelled.
7	The compressor and indoor fan stop intermittently in HEAT mode.	The compressor and indoor fan stop intermittently if room temperature exceeds a setting temperature in order to protect the compressor from overheated air in a HEAT mode.
8	Indoor fan and outdoor fan stop operation intermittently in a HEAT mode.	The compressor operates in a reverse cycle to remove exterior ice in a HEAT mode, and indoor fan and outdoor fan do not operate intermittently for within 20% of the total heater operation
9	The compressor stops intermittently in a COOL mode or DRY mode, and fan speed of the indoor unit decreases.	The compressor stops intermittently or the fan speed of the indoor unit decreases to prevent inside/outside air frozen depending on the inside/outside air temperature.

4) Indoor unit observes operation condition of the air conditioner, and displays self diagnosis details on the display panel.

Error Mode	DISPLAY 7-SEGMENT		Remark
	Operation Off	Operation On	
Indoor unit room temperature sensor error (open or short)	OFF	E1	
Indoor unit heat exchanger temperature sensor error(open or short)	OFF	E2	
Indoor FAN MOTOR error : Keep the RPM value 450 below for 15 seconds	OFF	E3	
EEPROM error	OFF	E6	
Error in option In case of No option set-up In case of option data error	All lamp blinking	All lamp blinking	

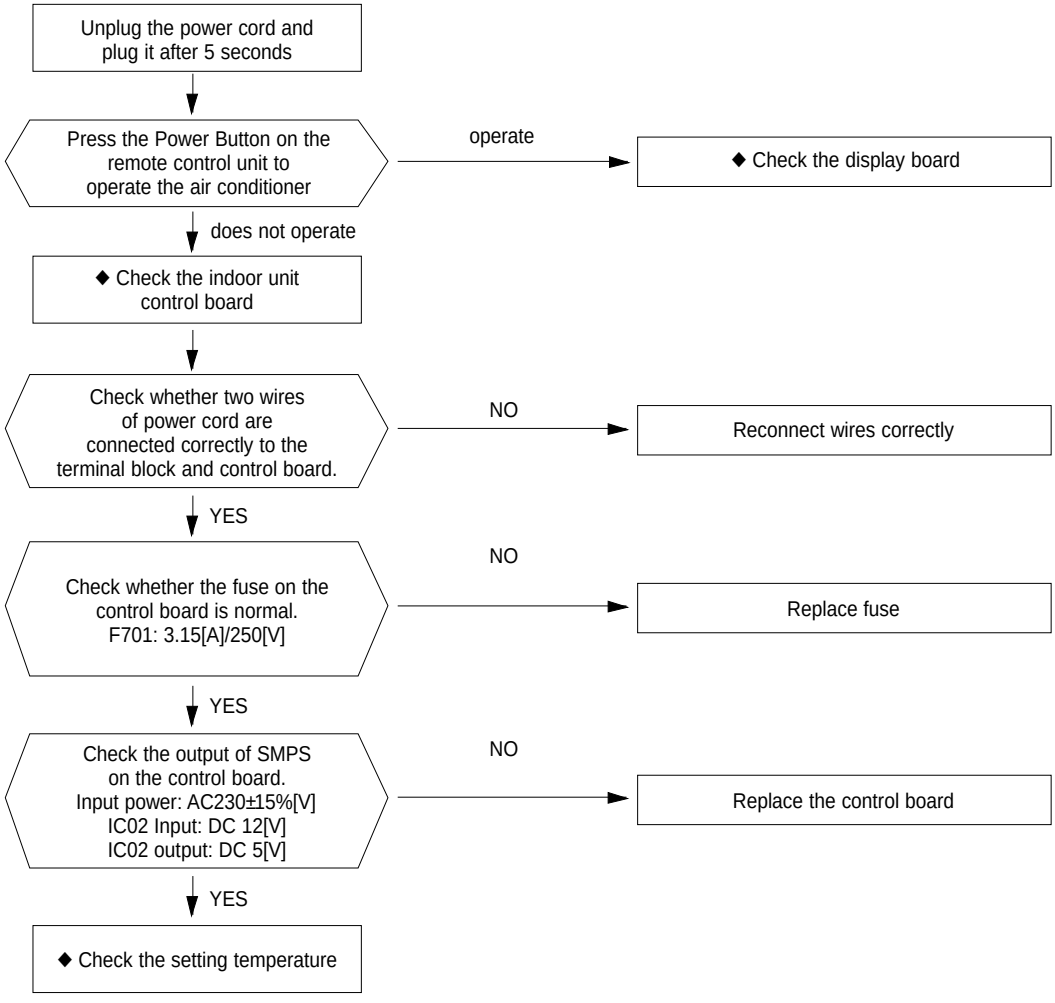
Troubleshooting for Non Inverter Heat Pump (7K/9K) (Cont.)

8-2-2. Fault Diagnosis by Symptom

◆ **No Power (completely dead)-Initial diagnosis**

1) Checklist :
   (1) Is input voltage normal?
   (2) Is AC power linked correctly?
   (3) Is input voltage of DC regulator IC KA7805 (IC02) normal? (11VDC-12.5VDC)
   (4) Is output voltage of DC regulator IC KA7805 (IC02) normal? (4.5VDC-5.5VDC)

2) Troubleshooting procedure

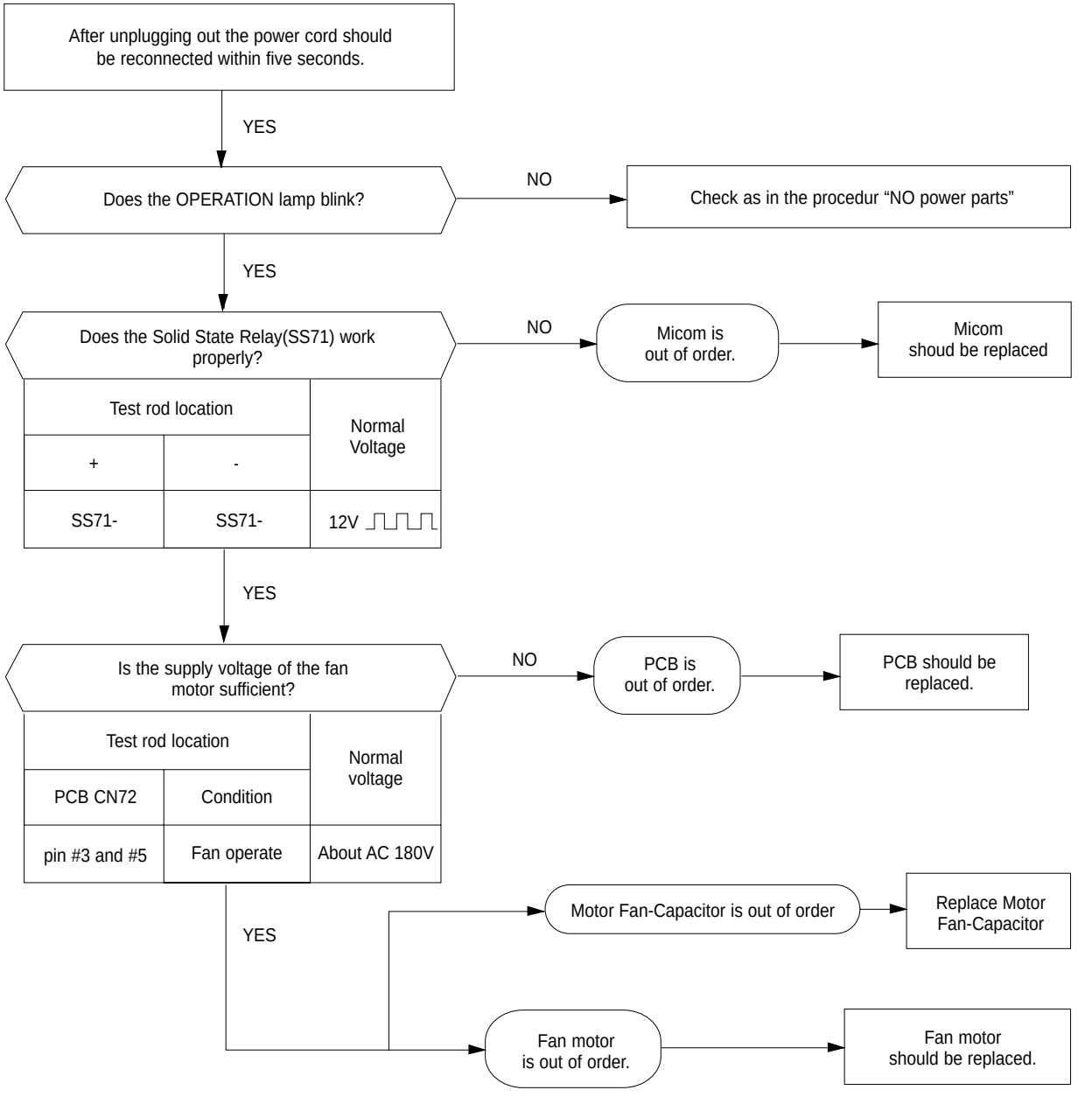


Troubleshooting for Non Inverter Heat Pump (7K/9K) (Cont.)

◆ **When the Indoor Unit Fan Does Not Operate. (Initial Diagnosis)**

1) Checklist :
   (1) Is the indoor unit fan motor properly connected with the connector (CN72)?
   (2) Is the AC voltage correct?
   (3) Is HALL IC in indoor fan motor properly connected with the connector (CN44)?
   (4) Is the running capacitor (CR71) properly connected with PCB board?

2) Troubleshooting procedure

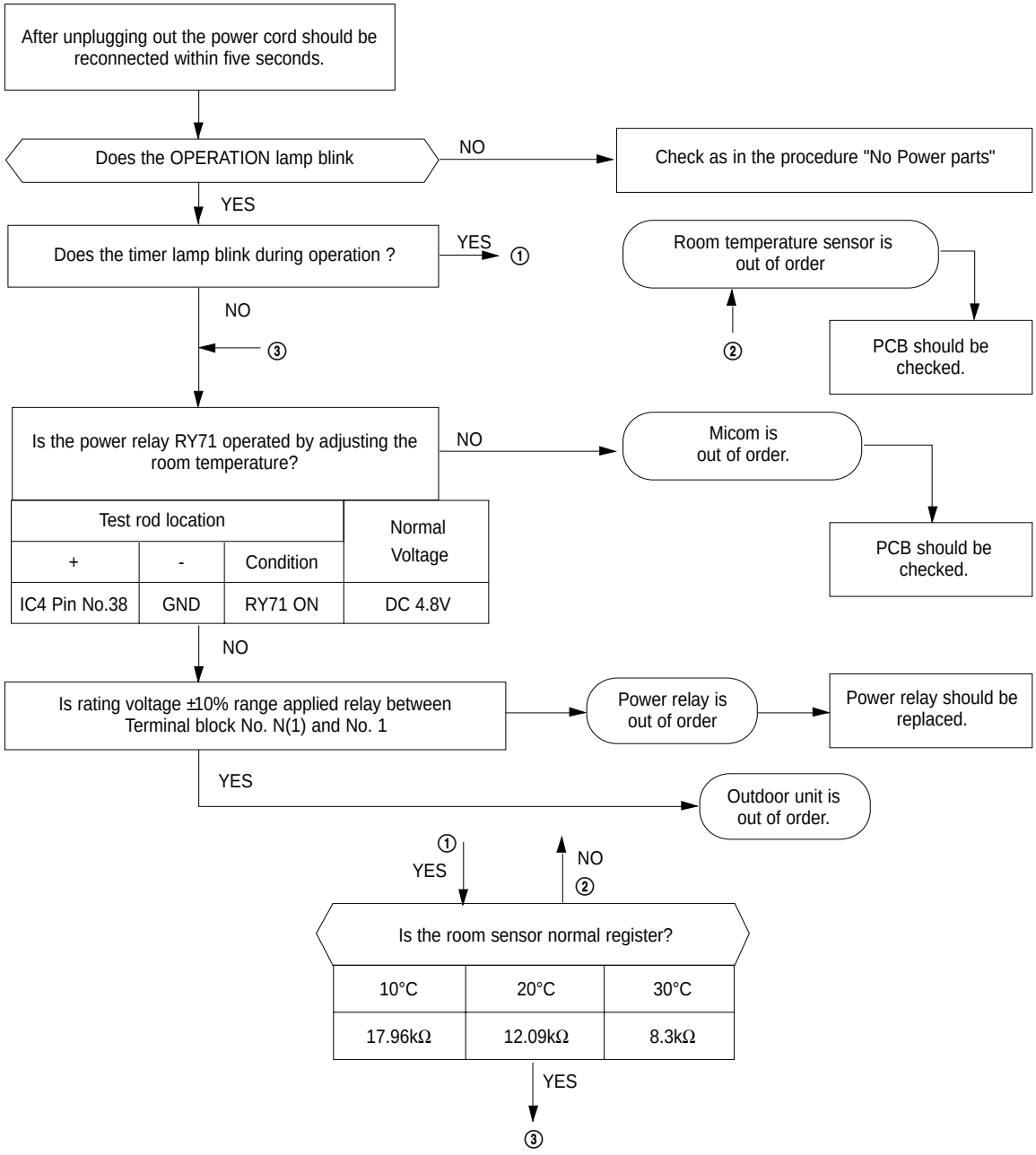


Troubleshooting for Non Inverter Heat Pump (7K/9K) (Cont.)

◆ **When the Outdoor Unit Does Not Operate. (Initial Diagnosis)**

1) Checklist :
   (1) Is input voltage normal?
   (2) Is the set temperature of the remote control higher than room temperature in COOL mode?
   (3) Is the set temperature of the remote control lower than room temperature in HEAT mode?
   (4) Is the POWER IN connector (CN71) linked correctly?
   (5) Is the outdoor unit properly connected with the TERMINAL BLOCK connector(N(1), 1, 2, 3)?

2) Troubleshooting procedure

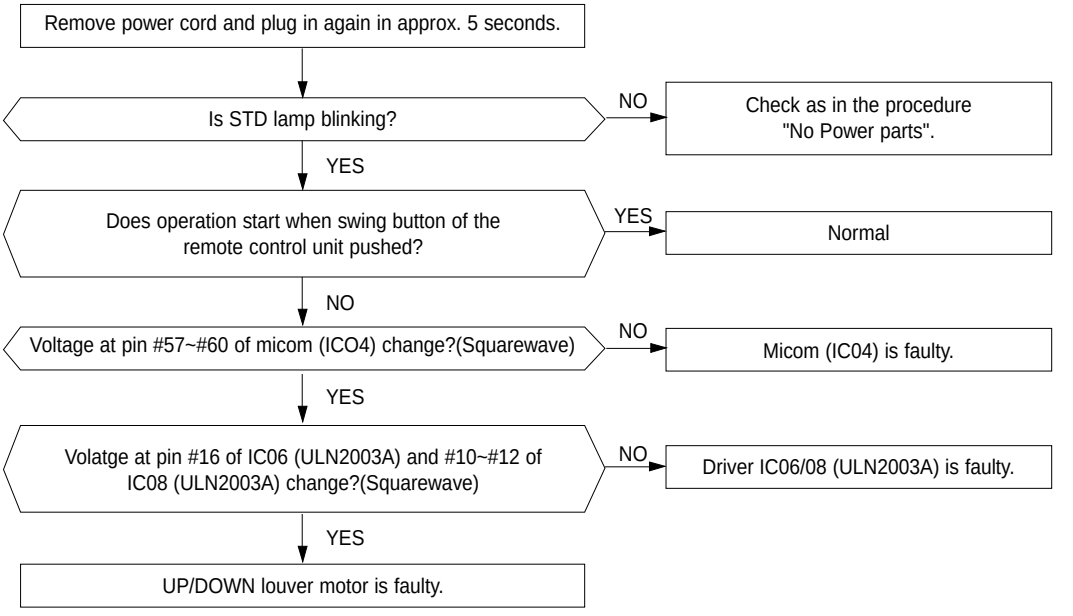


Troubleshooting for Non Inverter Heat Pump (7K/9K/12K) (Cont.)

◆ **When the UP/DOWN Louver Moter Does Not Operate. (Initial Diagnosis)**

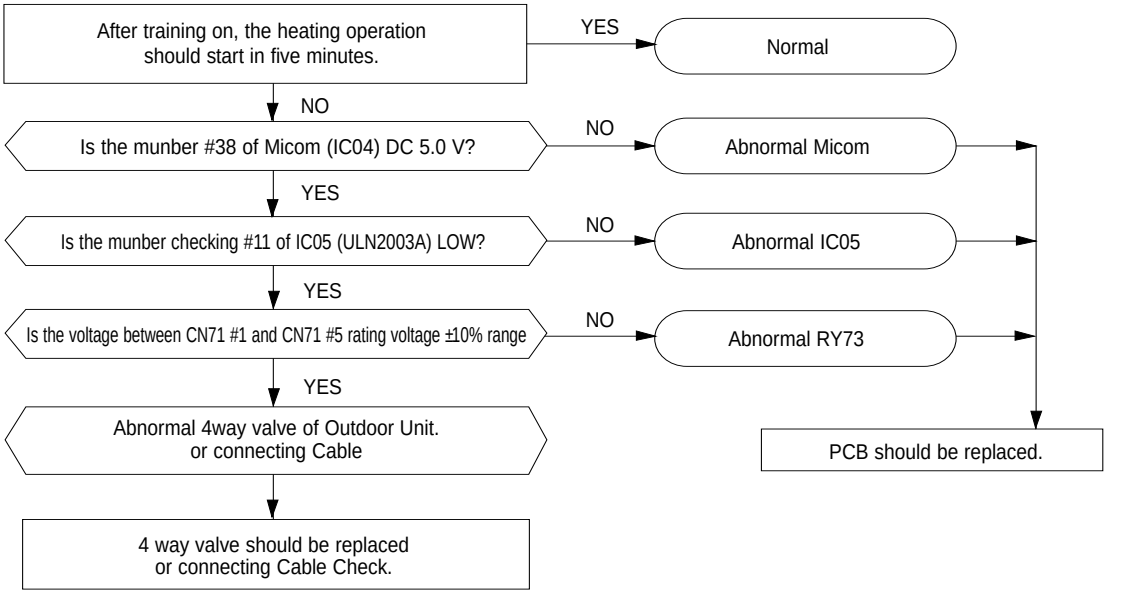
1) Checklist :
   (1) Is input voltage normal?
   (2) Is the UP/DOWN louver motor properly connected with the connector (CN61)?

2) Troubleshooting procedure



◆ **In the mode, When there is no warm air current. Check this fist;**

(1) Is the set temperature of Remote Control lower than room temperature in Heat mode?
(2) Is the Indoor PCB properly connected with the CN71 connector?



8-3. Troubleshooting for Non Inverter Cooling Only (12K)

8-3-1. Items to be checked first

1) The input voltage should be rating voltage ±10% range.
The airconditioner may not operate properly if the voltage is out of this range.

2) Is the link cable linking the indoor unit and the outdoor unit linked properly?
The indoor unit and the outdoor unit shall be linked by 3 cables.
Check the terminals if the indoor unit and outdoor unit are properly linked by the same number of cables.
Otherwise the airconditioner may not operate properly.

3) When a problem occurs due to the contents illustrated in the table below it is a symptom not related to the malfunction of the airconditioner.

NO	Operation of air conditioner	Explanation
1	The OPERATION indication LED(≋) blinks when a power plug of the indoor unit is plugged in for the first time.	It indicates power is on. The LED stops blinking if the operation ON/OFF button on the remote control unit is pushed.
2	In a COOL operation mode, the compressor does not operate at a room temperature higher than the setting temperature that the IN DOOR FAN should operate.	In happens after a delay of 3 minutes when the compressor is reoperated. The same phenomenon occurs when a power is on. As a phenomenon that the compressor is reoperated after a delay of 3 minutes, the indoor fan is adjusted automatically with reference to a temperature of the air blew
3	Fan speed setting is not allowed in AUTO or DRY mode. (Auto)	The speed of the indoor fan is set to LL in DRY mode. Fan speed is selected automatically in AUTO mode.
4	Compressor stops operation intermittently in DRY mode.	Compressor operation is controlled automatically in DRY mode depending on the room temperature and humidity.
5	The compressor stops intermittently in a COOL mode or DRY mode, and fan speed of the indoor unit decreases.	The compressor stops intermittently or the fan speed of the indoor unit decreases to prevent inside/outside air frozen depending on the inside/outside air temperature.

4) Indoor unit observes operation condition of the air conditioner, and displays self diagnosis details on the display panel.

Error Mode	DISPLAY 7-SEGMENT		Remark
	Operation Off	Operation On	
Indoor unit room temperature sensor error (open or short)	OFF	E1	
Indoor unit heat exchanger temperature sensor error(open or short)	OFF	E2	
Indoor FAN MOTOR error : Keep the RPM value 450 below for 15 seconds	OFF	E3	
EEPROM error	OFF	E6	
Error in option In case of No option set-up In case of option data error	All lamp blinking	All lamp blinking	

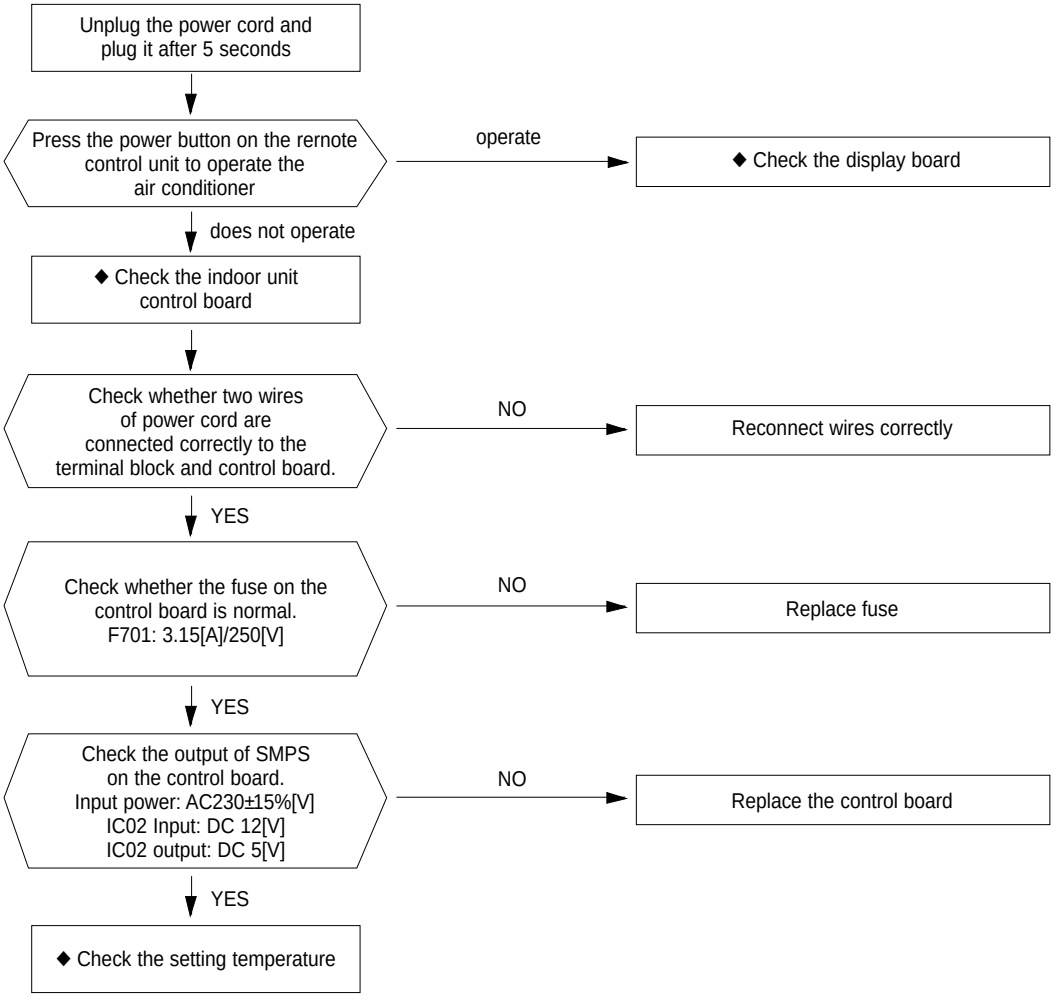
Troubleshooting for Non Inverter Cooling Only (12K) (Cont.)

8-3-2. Fault Diagnosis by Symptom

◆ **No Power (completely dead)-Initial diagnosis**

1) Checklist :
   (1) Is input voltage normal? the rating voltage ±10% range.
   (2) Is AC power linked correctly?
   (3) Are connections between primary side, secondary side of the power transformer and PCB good.
   (4) Is input voltage of DC regulator IC KA7805 (IC02) normal? (11VDC-12.5VDC)
   (5) Is output voltage of DC regulator IC KA7805 (IC02) normal? (4.5VDC-5.5VDC)

2) Troubleshooting procedure

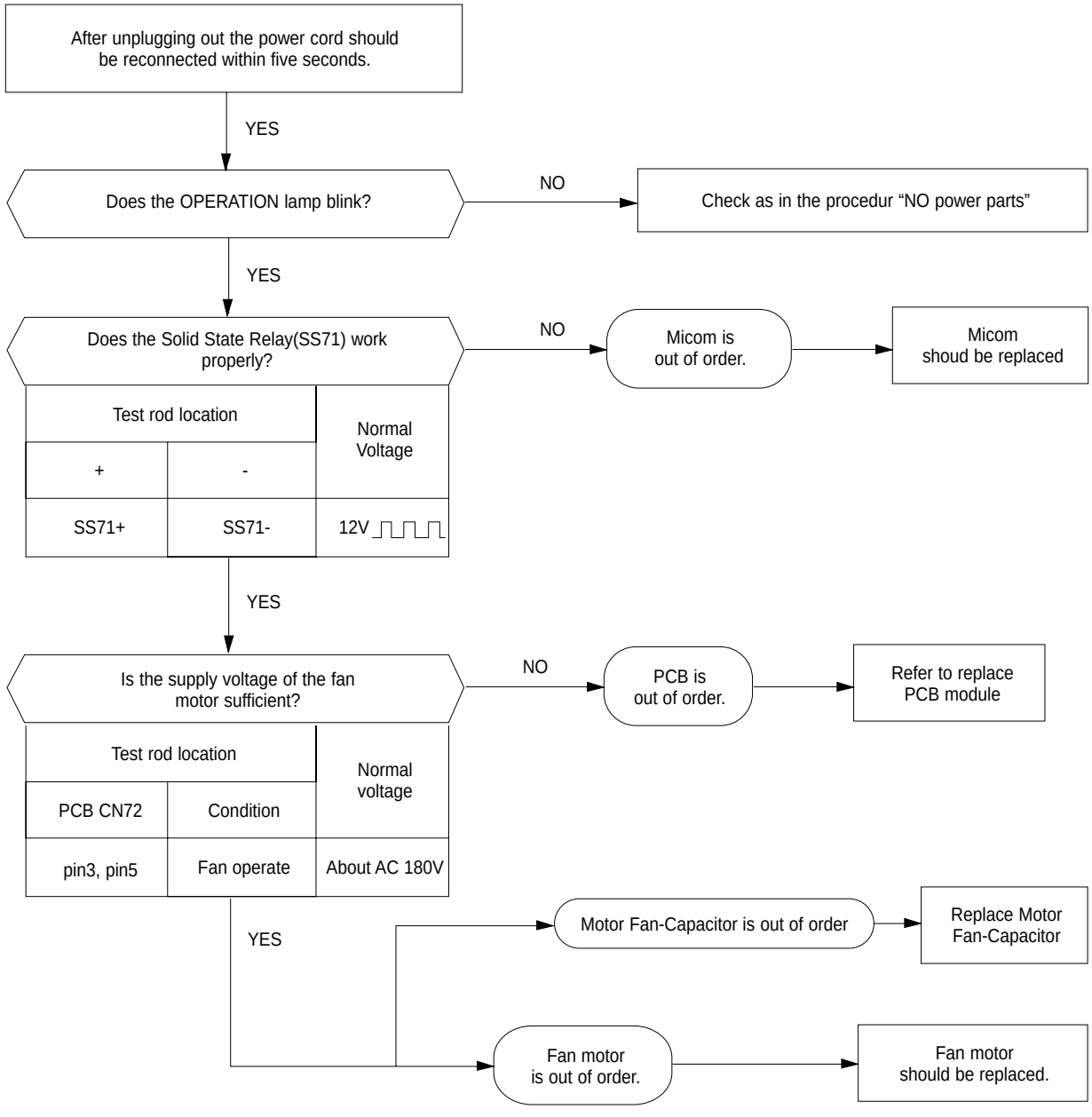


Troubleshooting for Non Inverter Cooling Only (12K) (Cont.)

◆ **When the Indoor Unit Fan Does Not Operate. (Initial Diagnosis)**

1) Checklist :
   (1) Is the indoor unit fan motor properly connected with the connector (CN72)?
   (2) Is the AC voltage correct?
   (3) Is HALL IC in indoor fan motor properly connected with the connector (CN44)?
   (4) Is the running capacitor properly connected with PCB board?

2) Troubleshooting procedure

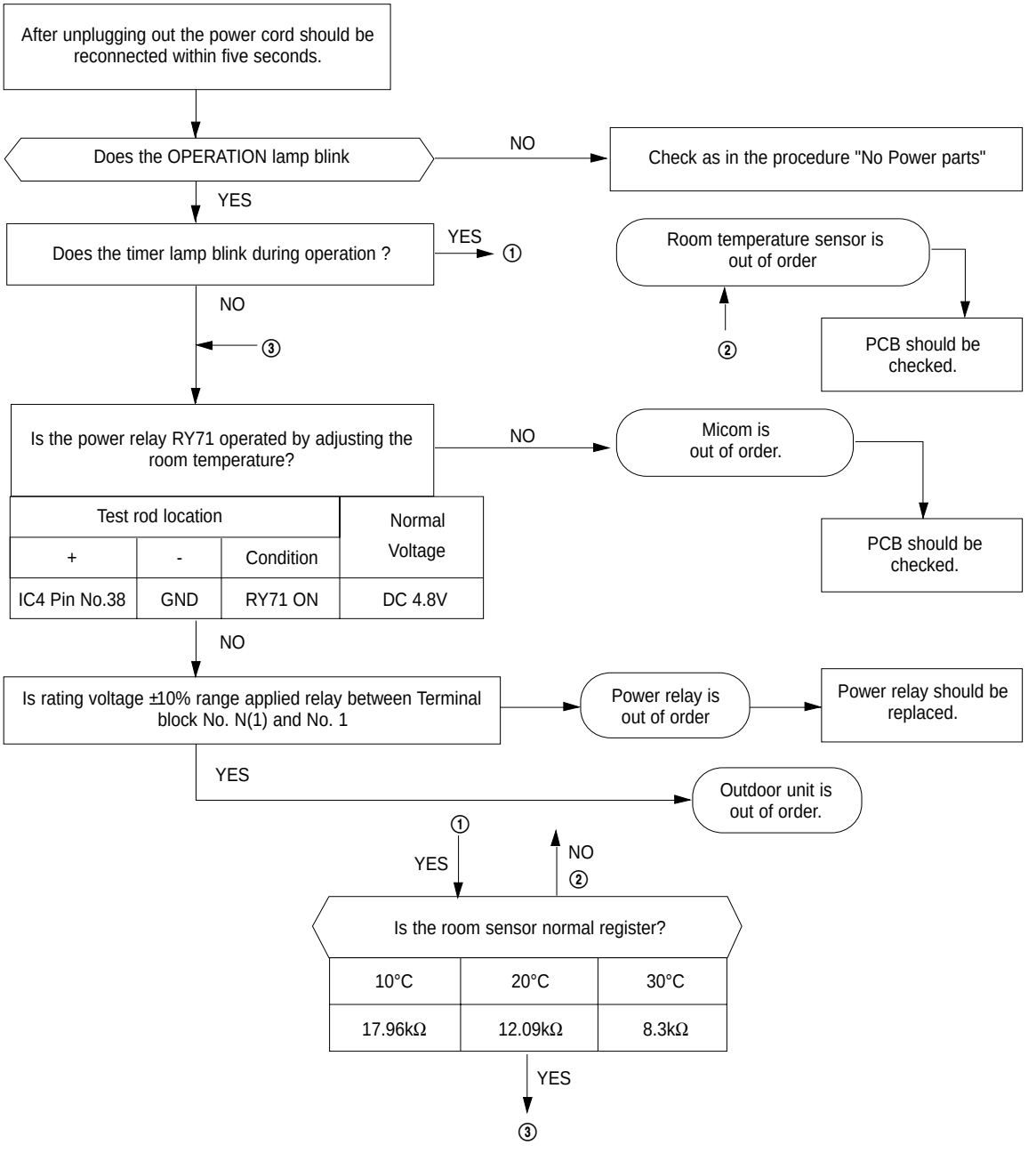


Troubleshooting for Non Inverter Cooling Only (12K) (Cont.)

◆ **When the Outdoor Unit Does Not Operate. (Initial Diagnosis)**

1) Checklist :
   (1) Is input voltage normal?
   (2) Is the set temperature of the remote control higher than room temperature in COOL mode?
   (3) Is the POWER IN connector (CN71) linked correctly?
   (4) Is the outdoor unit properly connected with the TERMINAL BLOCK connector(N(1), 1)?

2) Troubleshooting procedure

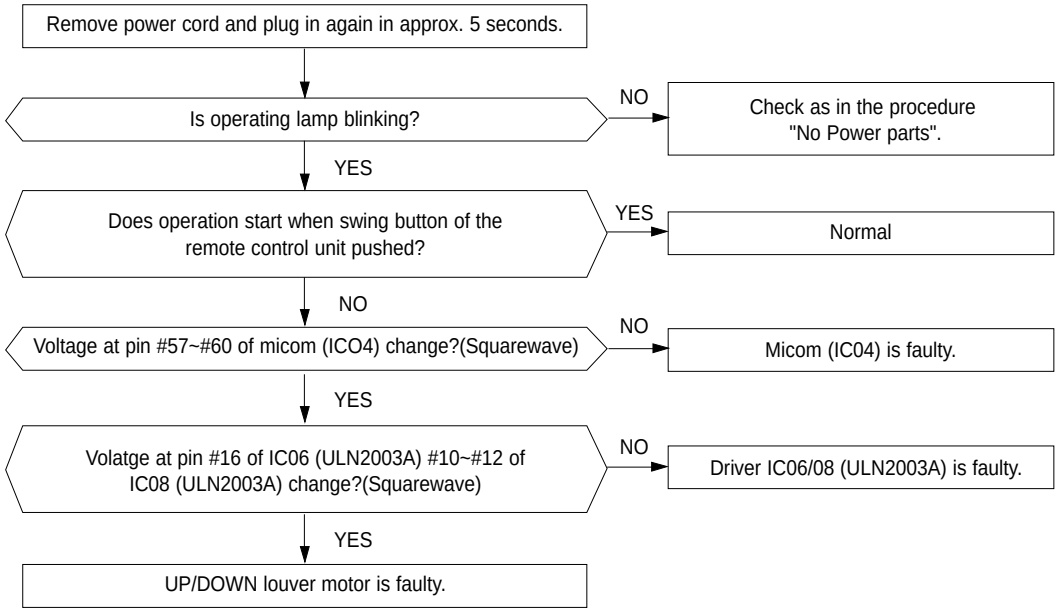


Troubleshooting for Non Inverter Cooling Only (12K) (Cont.)

◆ **When the UP/DOWN Louver Moter Does Not Operate. (Initial Diagnosis)**

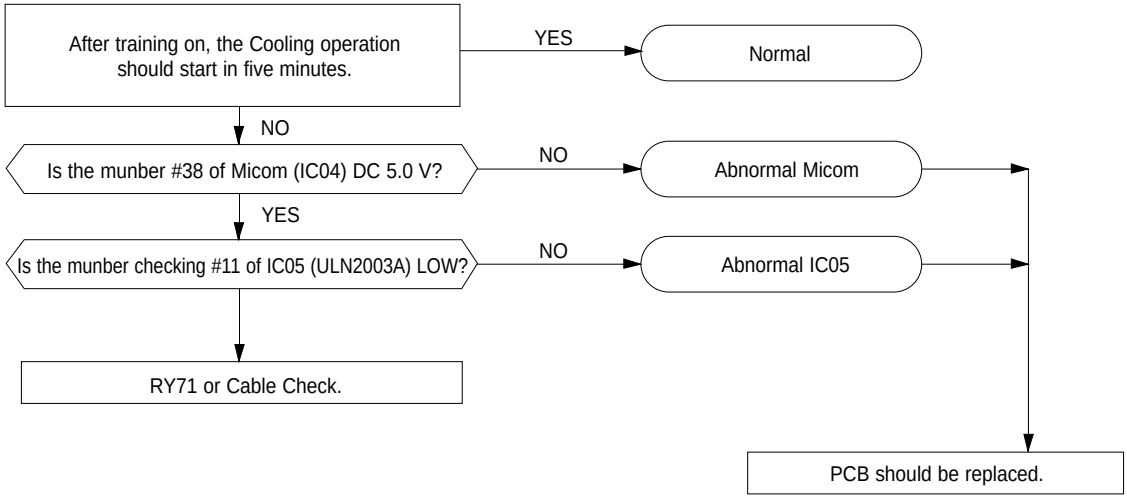
1) Checklist :
   (1) Is input voltage normal? (input voltage ±10% range)
   (2) Is the UP/DOWN louver motor properly connected with the connector (CN61)?

2) Troubleshooting procedure



◆ **In the mode, When there is no cool air current. Check this first;**

(1) Is the set temperature of Remote Control lower than room temperature in Cool mode?
(2) Is the Indoor PCB properly connected with the CN71 connector?



8-4. Troubleshooting for Non Inverter Heat Pump (12K)

8-4-1. Items to be checked first

1) The input voltage should be rating voltage ±10% range.
The airconditioner may not operate properly if the voltage is out of this range.

2) Is the link cable linking the indoor unit and the outdoor unit linked properly?
The indoor unit and the outdoor unit shall be linked by 6 cables.
Check the terminals if the indoor unit and outdoor unit are properly linked by the same number of cables.
Otherwise the airconditioner may not operate properly.

3) When a problem occurs due to the contents illustrated in the table below it is a symptom not related to the malfunction of the airconditioner.

NO	Operation of air conditioner	Explanation
1	The OPERATION indication LED(≋) blinks when a power plug of the indoor unit is plugged in for the first time.	It indicates power is on. The LED stops blinking if the operation ON/OFF button on the remote control unit is pushed.
2	In a COOL operation mode, the compressor does not operate at a room temperature higher than the setting temperature that the INDOOR FAN should operate. In a HEAT operation mode, the compressor does not operate at a room temperature lower than the setting temperature that indoor fan should operate.	In happens after a delay of 3 minutes when the compressor is reoperated. The same phenomenon occurs when a power is on. As a phenomenon that the compressor is reoperated after a delay of 3 minutes, the indoor fan is adjusted automatically with reference to a temperature of the air blew
3	Fan speed setting is not allowed in AUTO or DRY mode. (Auto)	The speed of the indoor fan is set to LL in DRY mode. Fan speed is selected automatically in AUTO mode.
4	Compressor stops operation intermittently in DRY mode.	Compressor operation is controlled automatically in DRY mode depending on the room temperature and humidity.
5	Compressor of the outdoor unit is operating although it is turned off in a HEAT mode.	When the unit is turned off while de-ice is activated, the compressor continues operation for up to 9 minutes (maximum) until the deice is completed.
6	Timer LED of the indoor unit lights up and the air conditioner does not operate.	Timer is being activated and the unit is in ready mode. The unit operates normally if the timer operation is cancelled.
7	The compressor and indoor fan stop intermittently in HEAT mode.	The compressor and indoor fan stop intermittently if room temperature exceeds a setting temperature in order to protect the compressor from overheated air in a HEAT mode.
8	Indoor fan and outdoor fan stop operation intermittently in a HEAT mode.	The compressor operates in a reverse cycle to remove exterior ice in a HEAT mode, and indoor fan and outdoor fan do not operate intermittently for within 20% of the total heater operation
9	The compressor stops intermittently in a COOL mode or DRY mode, and fan speed of the indoor unit decreases.	The compressor stops intermittently or the fan speed of the indoor unit decreases to prevent inside/outside air frozen depending on the inside/outside air temperature.

4) Indoor unit observes operation condition of the air conditioner, and displays self diagnosis details on the display panel.

Error Mode	DISPLAY 7-SEGMENT		Remark
	Operation Off	Operation On	
Indoor unit room temperature sensor error (open or short)	OFF	E1	
Indoor unit heat exchanger temperature sensor error(open or short)	OFF	E2	
Indoor FAN MOTOR error : Keep the RPM value 450 below for 15 seconds	OFF	E3	
EEPROM error	OFF	E6	
Error in option	All lamp blinking	All lamp blinking	
In case of No option set-up	All lamp blinking	All lamp blinking	
In case of option data error	All lamp blinking	All lamp blinking	

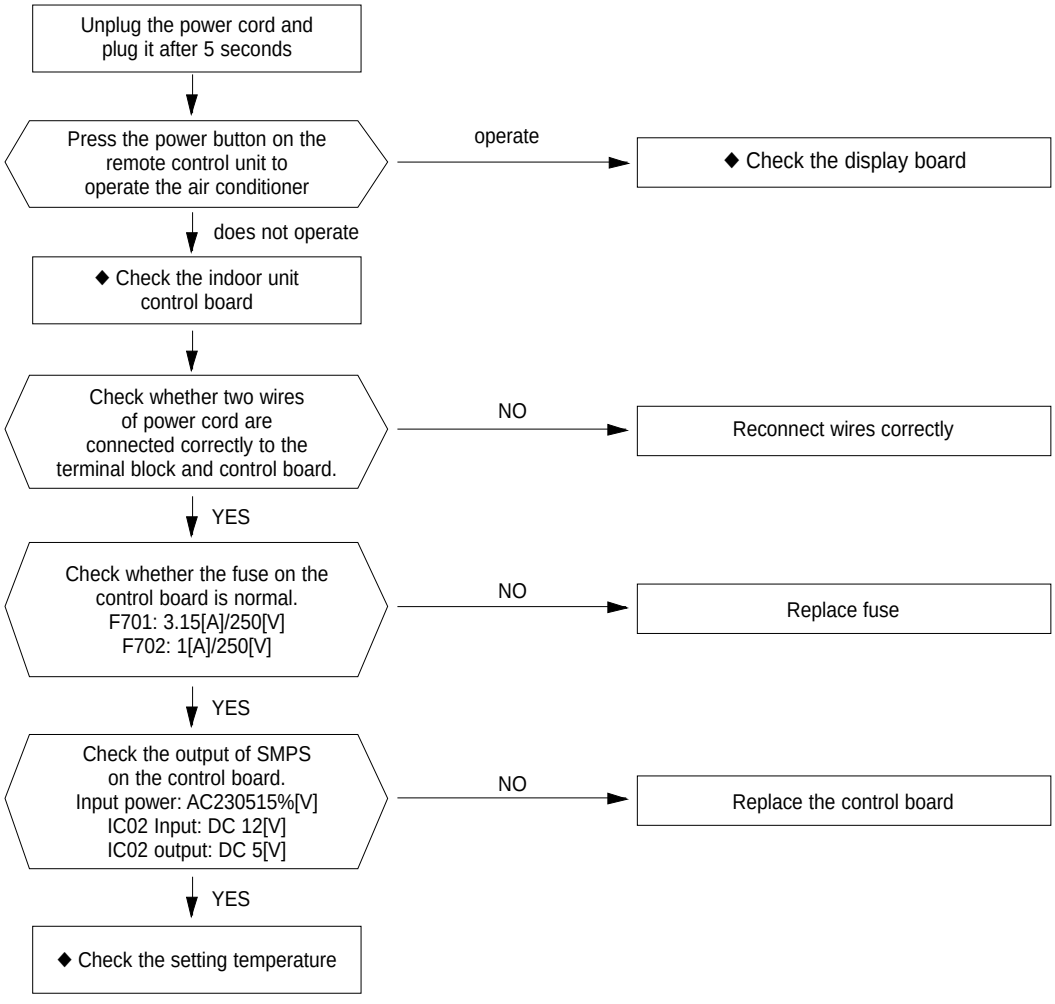
Troubleshooting for Non Inverter Heat Pump (12K) (Cont.)

8-4-2. Fault Diagnosis by Symptom

◆ **No Power (completely dead)-Initial diagnosis**

1) Checklist :
   (1) Is input voltage normal? (the rating voltage ±10% range)
   (2) Is AC power linked correctly?
   (3) Are connections between primary side, secondary side of the power transformer and PCB good.
   (4) Is input voltage of DC regulator IC KA7805 (IC02) normal? (11VDC-12.5VDC)
   (5) Is input voltage of DC regulator IC KA7805 (IC02) normal? (4.5VDC-5.5VDC)

2) Troubleshooting procedure



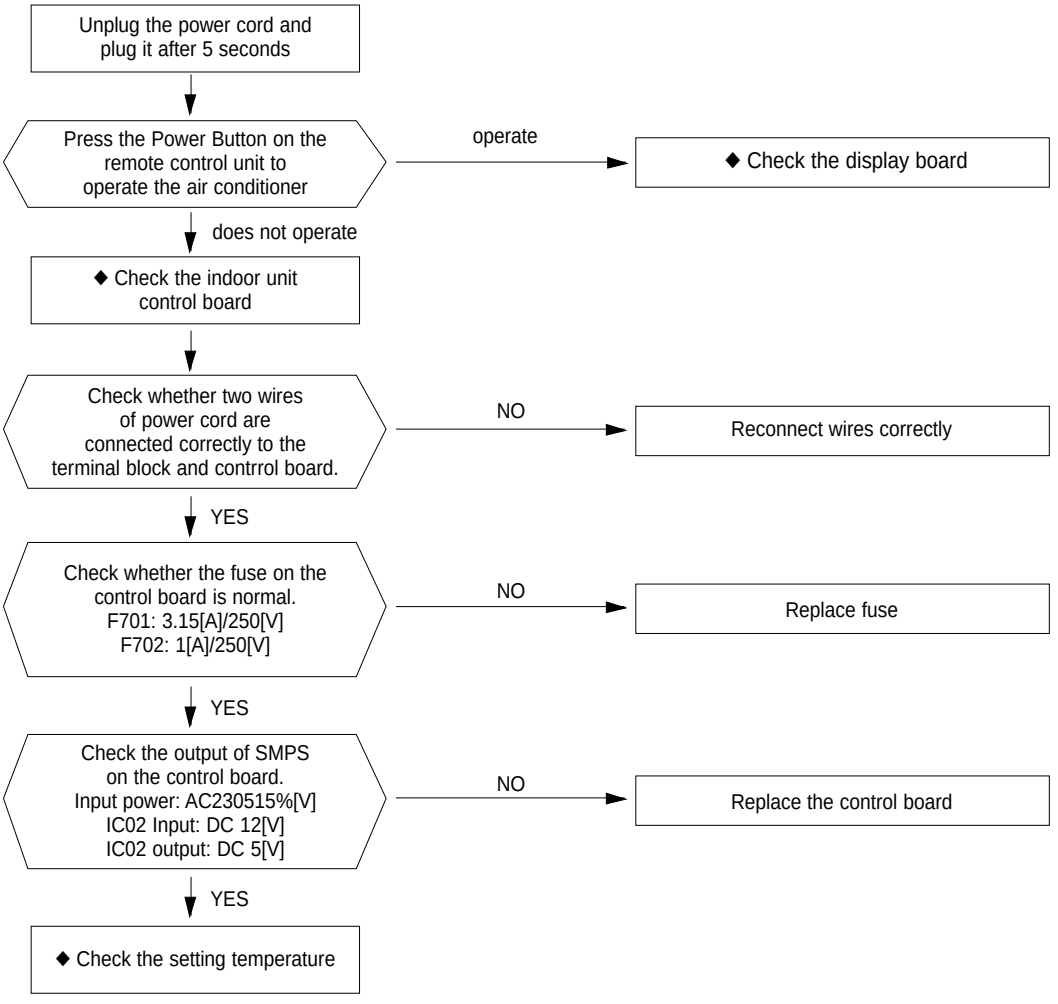
Troubleshooting for Non Inverter Heat Pump (12K) (Cont.)

8-4-2. Fault Diagnosis by Symptom

◆ **No Power (completely dead)-Initial diagnosis**

1) Checklist :
   (1) Is input voltage normal? (the rating voltage ±10% range)
   (2) Is AC power linked correctly?
   (3) Are connections between primary side, secondary side of the power transformer and PCB good.
   (4) Is input voltage of DC regulator IC KA7805 (IC02) normal? (11VDC-12.5VDC)
   (5) Is input voltage of DC regulator IC KA7805 (IC02) normal? (4.5VDC-5.5VDC)

2) Troubleshooting procedure

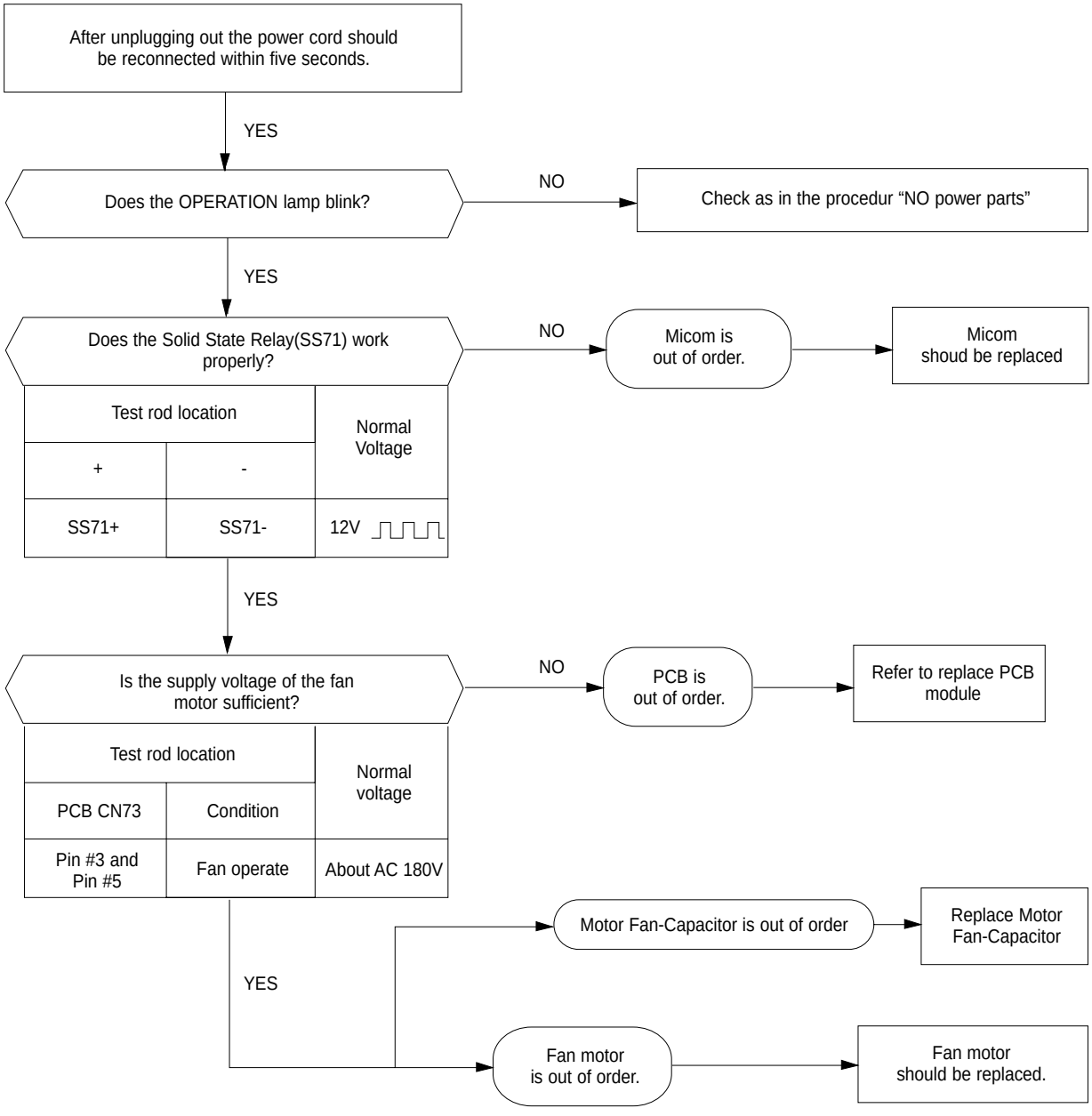


Troubleshooting for Non Inverter Heat Pump (12K) (Cont.)

◆ **When the Indoor Unit Fan Does Not Operate. (Initial Diagnosis)**

1) Checklist :
   (1) Is the indoor unit fan motor properly connected with the connector (CN72)?
   (2) Is the AC voltage correct?
   (3) Is HALL IC in indoor fan motor properly connected with the connector (CN44)?
   (4) Is the running capacitor properly connected with PCB board?

2) Troubleshooting procedure

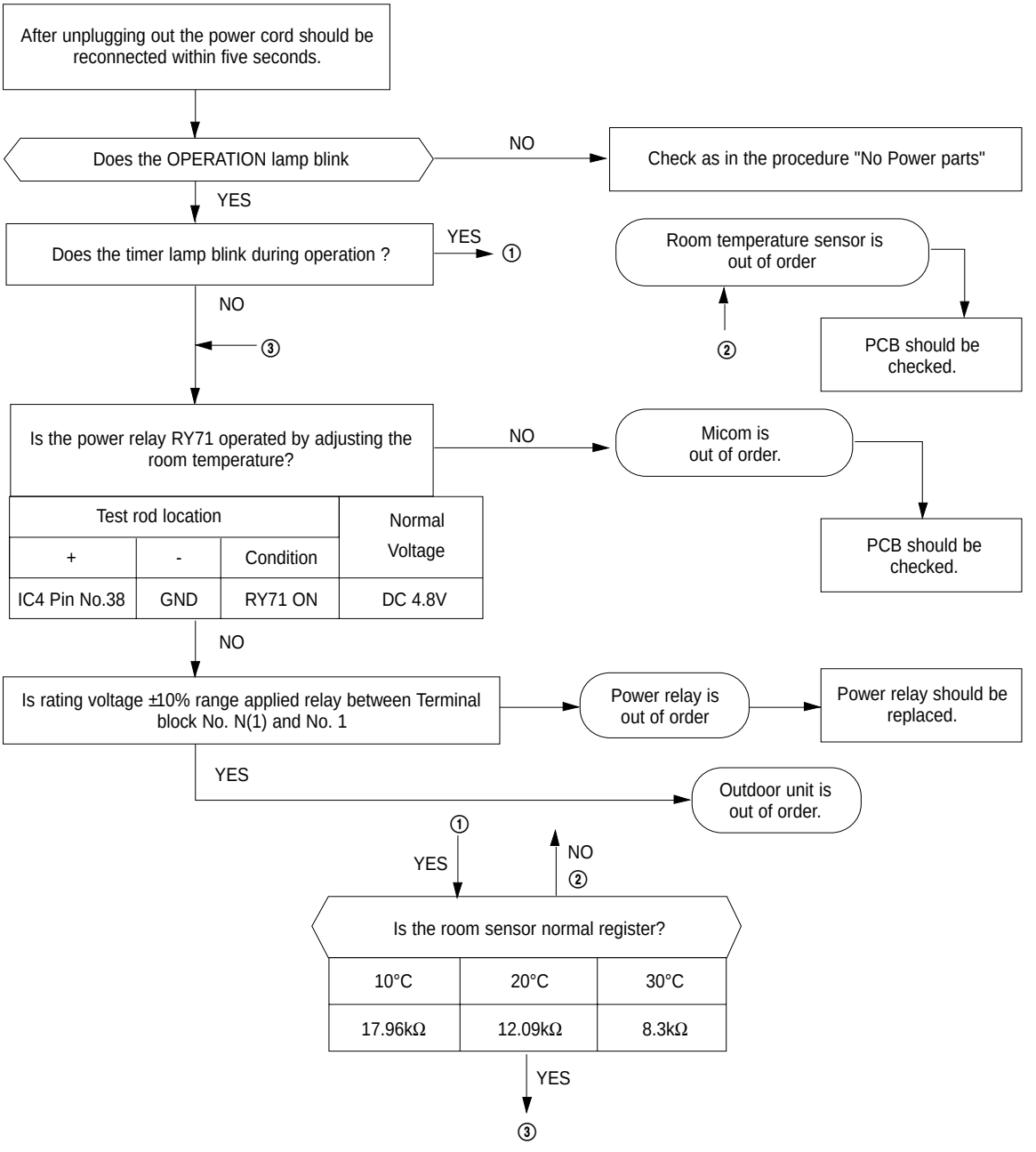


Troubleshooting for Non Inverter Heat Pump (12K) (Cont.)

◆ **When the Outdoor Unit Does Not Operate. (Initial Diagnosis)**

1) Checklist :
   (1) Is input voltage normal? (the rating voltage ±10% range)
   (2) Is the set temperature of the remote control higher than room temperature in COOL mode?
   (3) Is the set temperature of the remote control lower than room temperature in HEAT mode?
   (4) Is the POWER IN connector (CN71) linked correctly?
   (5) Is the outdoor unit properly connected with the TERMINAL BLOCK connector(N(1), 1, 2, 3)?

2) Troubleshooting procedure

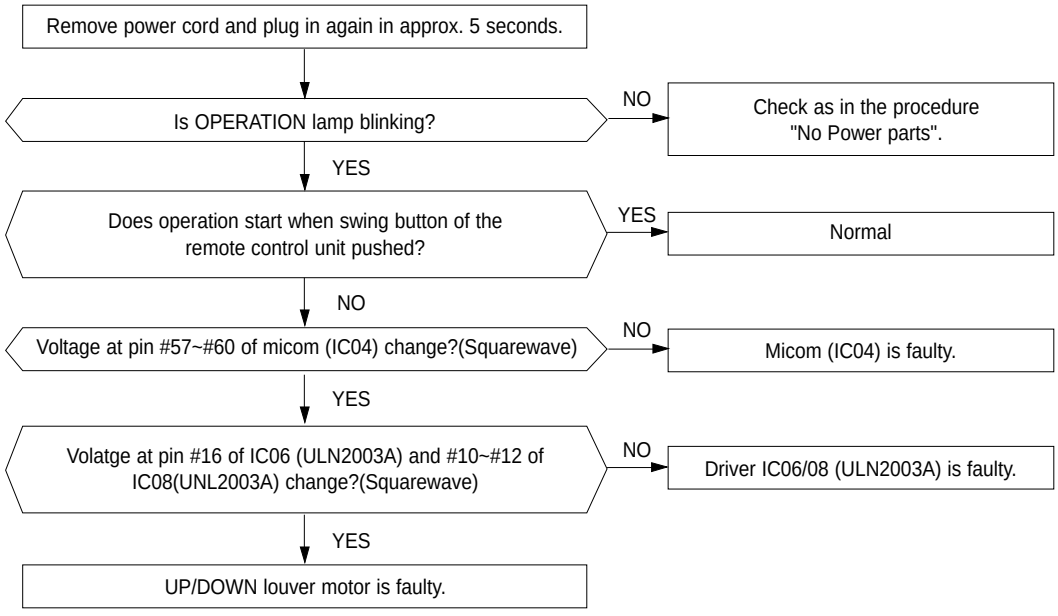


Troubleshooting for Non Inverter Heat Pump (12K) (Cont.)

◆ **When the UP/DOWN Louver Moter Does Not Operate. (Initial Diagnosis)**

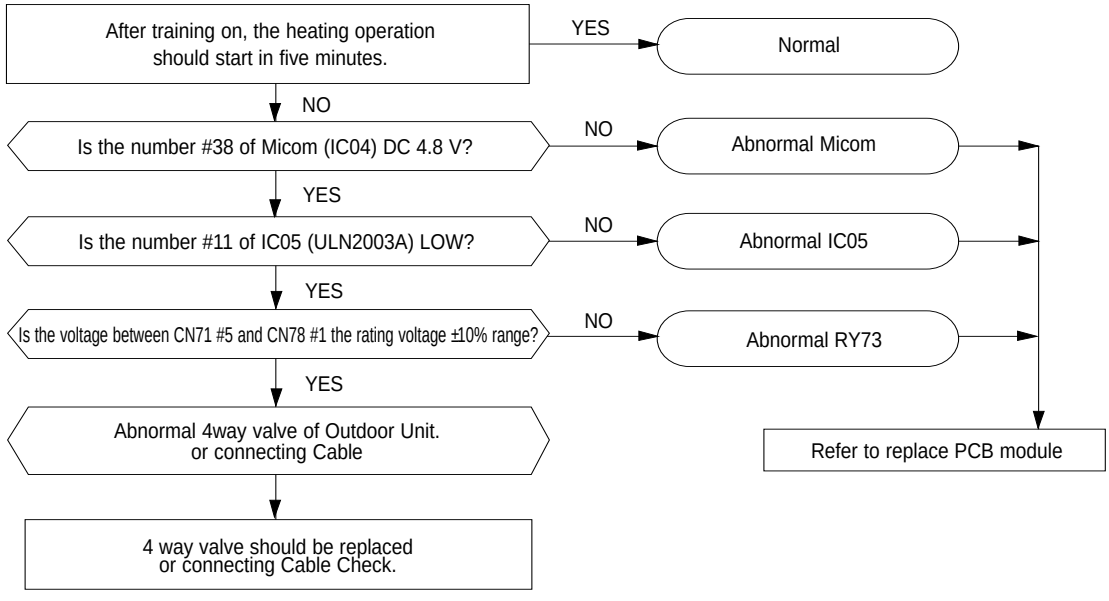
1) Checklist :
   (1) Is input voltage normal? (the rating voltage ±10% range)
   (2) Is the UP/DOWN louver motor properly connected with the connector (CN61)?

2) Troubleshooting procedure



◆ **In the Heat mode, When there is no warm air current. Check this first;**

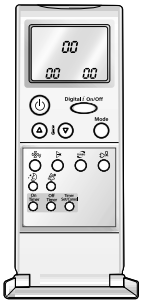
(1) Is the set temperature of Remote Control lower than room temperature in Heat mode?
(2) Is the Indoor PCB properly connected with the CN71 and CN78 connector?



Set up the model Option

8-5. Set up the Model Option

Step 1 : Preparing the remocon to main PBA option set



1st Remove the battery from the remocon.

2nd Press the temperature raise/down button simultaneously and insert the battery again.

3rd Make sure the remocon display shown as 0 0 0 0 0 0.

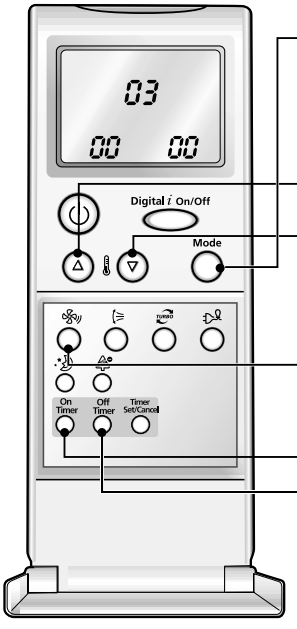
Step 2 : Second stage preparation of the remocon option set.

✺ **Note** ; In case the wrong letter has been selected, continue to press the button until the correct letter appears.

1st If the first stage number "0" appears on the display, proceed to the second stage.

2nd Every time the ① and ⑦ button, "0" and " | " each continue to appear.

3rd Whenever pressing the ②, ③, ④, ⑤, ⑥, ⑧, ⑨, ⑩, ⑪, ⑫ button, the number increases from 0~9(0123456789) and A, b, c, d, E, F each time.



① If the first number is 0 , it is correct otherwise press Mode until 0 appear.

② When pressing the △ button 0 ~ F appear on the display, select one of them.

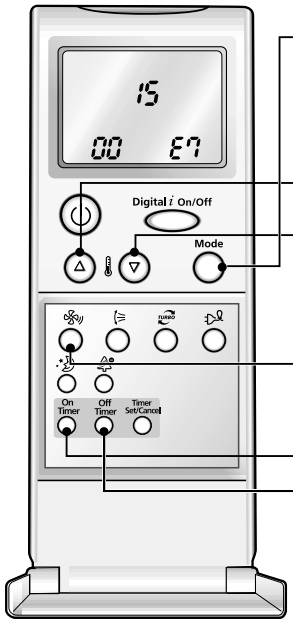
③ When pressing the ▽ button 0 ~ F appear on the display, select one of them.

④ When pressing the button 0 ~ F appear on the display, select one of them.

⑤ When pressing the On Timer button 0 ~ F appear on the display, select one of them.

⑥ When pressing the Off Timer button 0 ~ F appear on the display, select one of them.

Set up the Model Option (Cont.)



① If the first number is 1 , it is correct otherwise press Mode until 1 appear.

② When pressing the △ button 0 ~ F appear on the display, select one of them.

③ When pressing the ▽ button 0 ~ F appear on the display, select one of them.

④ When pressing the button 0 ~ F appear on the display, select one of them.

⑤ When pressing the On Timer button 0 ~ F appear on the display, select one of them.

⑥ When pressing the Off Timer button 0 ~ F appear on the display, select one of them.

Step 3 : Reconfirming option set after completion

(in case of ex. 017d25-17021d)

After pressing Mode selector for the 0 mode, the display shown as 01 7d 25 .

After pressing Mode selector for the 1 mode, the display shown as 17 02 1d .

Step 4 : Pressing the ON/OFF button (⏻)

When pressing the operation ON/OFF key with the direction of remote controller for unit, the sound “Ding” or “Diriring” is heard and the OPERATION LED lamp is flickering at the same time, then the input of option is completed.
(If the diriring sound isn’t heard, try again pressing the ON/OFF button.)

Step 5 : Unit operation test-run

First, Remove the battery from the remote controller.

Second, Re-insert the battery into the remote controller.

Third, Press ON/OFF key with the direction of remote controller for set.

Error Mode :

1st If all lamps of indoor unit are flickering, Plug out and plug in again and pressing ON/OFF key to retry.

2nd If the unit is not working properly or all lamps are continuously flickering after setting the option code, see if the correct option code is set up for it’s model.

Set up the Model Option (Cont.)

<Table of the option code>

◆ **Non Inverter (7K/ 9K/ 12K)**

MODEL	OPTION CODE
SH12ZPG✻	067066-170362
AQ12P✻GE	067065-170362
AS12P✻G✻	060000-170384
SH09ZPG✻	026566-170340
AQ09P8GE	026064-170340
AQ09PBGE	026065-170340
AS09P✻G✻	020000-170340
SH07ZPG	026065-17022E
AQ07P8GE	026064-17022E
AQ07PBGE	026065-17022E
AS07P✻G✻	020000-17022E

MEMO

MEMO



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